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The advertisements which are now appearing in the papers all over the country of companies which are to furnish liquid air on a large scale must be accepted with a great deal of caution. The public mind has been very adroitly worked up for the reception of these by lectures, paragraphs in the press and other well understood methods. Undoubtedly liquid air possesses some valuable properties and many striking experiments can be performed with it. It is not by any means certain yet that it can be prepared, transported and used economically on a commercial scale; or that the difficulties in the way have been overcome. We do not say that they may not be overcome in the future; but to talk, as the advertisements do of the certainty that liquid air will soon largely replace steam in furnishing motive power, is going entirely too far. Such assertions have no present basis of fact to warrant anyone in making them. The liquid air people have a great deal to do yet before they can establish their claims or carry on business on a scale that will warrant the organization of $10,000,000 companies. The question of validity of patents is also quite an open one. It is doubtful if there is any valid patent on this subject.

An incident of the extraordinary business activity now prevailing over almost all the civilized world is the extraordinary demand for coal. We are constantly receiving reports of the scarcity of coal and coke in France, Germany and other European countries. Their own mines are unable to meet the demands for fuel, and Great Britain, the chief exporting country, has unusual requirements at home which prevent any considerable expansion in the foreign trade. Under these circumstances it is quite natural that attention should be turned to the United States, where alone a rapid increase in production is possible. It is true that our own home requirements are very large at present; but it is possible for us to enlarge our output in a much shorter time and to a far greater extent than can be done anywhere else. European consumers are apparently prepared to pay well, provided they can secure the supplies they need. Under these conditions a large increase in our coal exports may be expected during the current year. If the trade is properly managed this foreign business may extend beyond present temporary demands, and become a permanent feature of the coal trade.

The production of spelter in the world in 1899 is estimated by Messrs. Henry R. Merton & Company, of London, according to their usual custom, in a circular just issued. In the following table we give the world's production of metallic zinc for the year, using Messrs. Merton's figures for the European countries, but taking those collected for The Mineral Industry and for the statistical number of the "Engineering and Mining Journal" for the United States production. The figures given are in metric tons:

	1898. Met. Tons.	Per Cent.	1899. Met. Tons.	Per Cent.	Changes. Met. Tons.
Rhine, Blegium and Holland.	191 836	40.9	192,994	38.9 I.	1,158
Silesia	99,233	21.2	100,160	20.2 I.	934
Great Britain	28,387	6.1	32 223	6.5 I.	3,836
France and Spain	32,649	7.0	33,482	6.8 I.	833
Austria	7,229	1.5	7,305	1.5 I.	76
Poland	5,664	1.2	6,325	1.3 I.	661
Total Europe	364.998	77.9	372,496	75.2 I.	7,498
United States	103,514	22.1	123,194	24.8 I.	19,680
Totals	468,512	100.0	495,690	100.00 I.	27,178

With the exception of Great Britain, which shows a gain of 13.5 per cent. on a comparatively small production, the changes in European countries have been very small. For the whole of Europe the gain last year was 3.1 per cent. only. It is in the United States that the most important change is shown, and this country furnished nearly three-quarters of the increase of 5.8 per cent. in the world's supply of spelter. The importance of the increase is shown by the fact that the proportion of the total furnished by the United States increased from 22.1 per cent. in 1898 to 24.8 per cent. in 1899; while a still further advance in 1900 is very probable.

There are signs of a rush of considerable proportions to the Nome District, on the Alaskan Coast, as soon as the season opens. Many men are preparing to go there, and among them are a number who visited the district last year, which is, perhaps, the best evidence in its favor. The movement will differ materially in many respects from the Klondike rush which brought disaster to so many two years ago. In the first place, Nome is on the sea coast, and though the landing at that particular point is difficult, the place can be reached at the worst by a few miles' travel along the shore, and there is not the long and dangerous land journey which the earlier Klondikers had before them. Supplies can be taken with comparatively little difficulty, and there is little risk of actual famine, though food and other necessities will command a high price. The severity of the northern climate and the difficulties of prospecting and working in the tundra which covers most of the accessible part of the country, are great; but these obstacles can be overcome by the use of proper appliances.

The rush to Nome will probably include more old miners and prospectors and a smaller proportion of totally inexperienced men than the Klondike movement. It will come very largely from the Pacific Coast, and will include fewer men from the East. The failures and losses in the earlier rush have had their discouraging effect, which is too recent to be forgotten. Moreover, the general activity in trade has furnished paying employment to almost every one who is willing to work, and the number of men who are willing to take the chances is very much less. There are still plenty to go, and the chances are that Nome will be quite overcrowded enough in the three or four months which constitute the short working season there.

Almost every one who has seen a prospectus or a share application form of an English company has noticed some such phrase as this: "I agree with the Company as trustee for the Directors and other persons who may be liable, to waive any fuller compliance with Section 38 of the Company's Act, 1867, than is contained in the said prospectus." The act referred to provides for the complete disclosure of all contracts which have been entered into or are about to be entered into by the new company, but as promoters, particularly English ones, rarely care to show the full extent and disposal of their profits, this disclosure is made only under exceptional circumstances. The more common way is to get the applicant to contract himself outside the benefits of the act. This has become so much of a custom that the promoter has regarded it as legal, so that the recent decision of the Lords Justices of the Court of Appeal in the case of the Leather Shod Wheel Company, Limited, came as an unpleasant surprise to them. The prospectus of this company omitted all reference to important contracts by which the promoter was to obtain considerable benefits. This contract, the Judge said, ought to have been disclosed in the prospectus and the waiver clause could not avail the promoter because the plaintiff is not sufficiently informed of what he is waiving, and further said, "The introduction into the prospectus of a tricky waiver clause instead of preventing the prospectus from being fraudulent, affords an additional reason for holding it to be so in fact. . . . The appellant had ingeniously endeavored to shield himself from the consequences of concealing a contract to which he dare not allude, and his appeal must be dismissed with costs." All the other Judges concurred with the Master of the Rolls, that the plaintiff, who had applied for 1,000 shares, was entitled to have the contract rescinded and his money returned.

As things stand in London, this decision will have a deterrent effect on public promotion through public solicitation of subscriptions, but the old game will go on, as a company will be underwritten privately and the prospectus, if any, is issued, captioned for "private information only."

THE COMMERCIAL MOVEMENT OF SILVER.

The commercial movement of silver is a subject of much economic importance, and the white metal is a factor not to be neglected in an account of the world's trade. It is of especial importance to the United States, which is the greatest producer of silver in the world, and is also the largest seller of the metal. Our imports and exports of silver for two years past are given by the reports of the Treasury Department as follows:

	1898.	1899.	Changes.	Per ct.
Exports	$53,797,104	$53,484,680	D. $312,424	0.6
Imports	29,131,380	30,844,981	I. 1,713,601	5.9
Net exports	$24,665,724	$22,639,699	D. $2,026,025	8.2

The change in exports was slight, the foreign market taking very nearly the same quantity of silver last year as in 1898. The increase in imports was moderate. By far the greater part of these imports is made in base bullion and matte, which comes to the United States to be refined. Most of this is from Mexico, though a considerable quantity comes from British Columbia. Very little fine silver is imported. In 1899, at average prices, the net exports of silver were 37,998,800 fine ounces, or about 40 per cent. of the total quantity refined in this country, both from our own and foreign ores.

As London still remains the chief silver market, to trace the movement of silver it is necessary to go to the reports of the Board of Trade of Great Britain, which give the imports and exports of silver in that country for the year as below:

	Imports.		Exports.	
	1898.	1899.	1898.	1899.
United States	£9,359,395	£8,821,476	£8,121	£18,287
Canada	11,980	.....	29,040	40,144
Mexico and S. America	1,681,768	1,054,161	21,830	180,035
European countries	3,377,155	2,517,460	8,852,723	5,088,676
Africa	110,614	109,515	535,342	582,673
Australasia	84,654	208,413	115,967	134,170
The East	22,784	473	5,949,285	7,742,829
Other countries	29,449	16,491	111,343	168,318
Totals	£14,677,799	£12,727,989	£15,623,651	£13,955,132

The United States, it will be seen from this table, furnished by far the larger part of the imports, its proportion having been 69.3 per cent. last year, against 63.6 per cent. in 1898. The receipts shown in the table from Mexico and South America do not represent the total really drawn from those countries, since—as is well known—a large part of the Mexican silver goes to London from this country, where it is refined or put in marketable shape. The receipts from Australia, though they showed a large relative gain last year, still represent only a small portion of the Australian output; much of it going direct to China and India. The receipts from European countries are not the production of those countries, but rather an exchange movement, and they include silver originating in all parts of the world. The movement to and from these countries is shown in detail in the following table, taken from the British returns:

	Imports.		Exports.	
	1898.	1899.	1898.	1899.
Russia	.....	.....	£2,093,099	£2,983,360
Germany	£396,064	£640,806	608,944	483,249
Holland	76,016	1,448	72,459	30,485
Belgium	1,643,549	1,116,547	1,224,320	330,290
France	1,227,450	726,301	3,672,123	945,543
Portugal	1,936	2,054	185,644	143,199
Spain	22,600	23,650	970,924	155,330
Gibraltar and Malta	9,540	6,653	25,210	17,220
Totals	£3,377,155	£2,517,460	£8,852,723	£5,088,676

The most notable feature this year is again the large quantity sent to Russia. As the coinage requirements of that country have been filled, we must conclude again that much of this silver was taken for use in China, where large expenditures are being made for railroad and other work. The remaining European movement last year calls for no special remark.

The East still remains the largest taker of silver. The following table shows the London shipments, to which we have added the exports direct from San Francisco, reducing the latter to their sterling value, in order to make the comparisons complete:

	1898.	1899.	Changes.	Per ct.
British East Indies	£5,139,178	£5,601,588	I. £462,410	9.0
China	809,957	2,141,241	I. 1,331,284	164.4
Japan	150	.....	D. 650	100.0
Totals from London	£5,949,285	£7,742,829	I. £1,793,544	30.1
Add shipments from San Francisco	1,554,664	1,548,938	D. 5,726	0.4
Totals	£7,503,949	£9,291,767	I. £1,787,818	23.8

Taking the average values of the year, we find that these Eastern countries absorbed 80,373,800 ounces of silver; and in this we do not include the shipments from Australia to China, of which no full statement has been obtained; nor such amounts as may have reached China through Russia. If we add these, we must estimate that China and India must have taken last year not far from 95,000,000 ounces of silver; and over 75 per cent. of this great quantity went to China, which still seems to have abundant capacity to absorb the metal.

While it is almost as difficult to determine the exact quantity of silver used in the arts as in the case of gold, there is little doubt that the proportion of the total output thus used is even greater. The use of silver for ornament and household purposes is constantly growing, and this growth has been favored for a year or two past by the general prosperity and the larger amount available for investment in articles outside of the necessities of life. In this country certainly, and to some extent in Europe also, the lower price of silver has helped to extend its use. Since the difference in cost between articles of solid metal and plated wares has grown less, the disposition to buy the solid silver has increased so much that it must have caused a perceptible difference in the consumption. Probably more silver has been used and consumed in manufactures during the past year than ever before in a similar period. It is not too much to say that at least 85 per cent. of the silver produced in 1899 has been either consumed in the arts or has disappeared in the hoards of the East.

One instance occurred during the year of the opening of an Indian treasure, when silver from the treasury of the native State of Gwalior was offered for sale, the total quantity thus released being 75 lakhs of rupees ($2,407,500). It was a somewhat rare occurrence; whether the future adoption of a gold standard for India will lead to more sales of this kind in the future, it is not easy to say.

The price of silver in 1899 was a little higher than in the preceding year, the averages for 1899 being 59.58 cents per fine ounce in New York and 27.44 pence per sterling ounce (.925 fine) in London, against 58.26 cents and 26.76 pence respectively in 1898. The fluctuations in 1899 were moderate; the highest monthly average in New York being 61.23 cents in May, and the lowest, 57.98 cents in November; an extreme range of 3.25 cents. In December the average was 0.37 cents less than in January. The extremes in London were 28.15 pence in May and 26.70 pence in November, a range of 1.45 pence.

The relation between supply and demand was such as to keep the price from falling, but not such as to cause any considerable advance. Since the close of 1899 the market has been strong enough to raise the price somewhat above the average of last year, and the general tendency seems upward.

NEW PUBLICATIONS.

"The San Jacinto Earthquake, California." San Jacinto, Cal.; published by the San Jacinto Register. Pamphlet, pages, 24; illustrated. Price 25 cents.

This little book contains a few pages of description and number of views reproduced from photographs, showing the effects of the earthquake December 25th, 1899, in the towns of San Jacinto and Hemet in California, and the neighboring country. It is a striking illustration of the damage an earthquake can do, and is well worth preservation.

"Journal of the Proceedings of the Royal Society of New South Wales." Volume XXXII, 1898-99. Edited by J. H. Maiden and W. H. Hamlet, Honorary Secretaries. Sydney, N. S. W.; published by the Society. Pages, 428; illustrated.

This volume contains, besides the record of the meetings of the society, a number of papers—23 in all—written by members. These cover a wide range of scientific subjects, and a number of them are on topics of especial interest to engineers and miners. The society is an active one, as is shown by its records, and papers, and is apparently well supported in the good work which it is doing.

"The Mining Law of the Netherlands East Indies." Translated by Dr. W. R. Bischop and Frank Merricks. Amsterdam; J. H. de Bussy, and London; Effingham Wilson. Pamphlet, pages 32. Price (in New York), 35 cents.

The mineral resources of the Netherlands East Indies, which had been almost entirely neglected for many years, are now attracting a great deal of attention. Gold, tin, copper, coal and petroleum are among the products of the different islands under the jurisdiction of Holland. As foreign capital is interested to a considerable extent, it is useful to have the mining laws presented in a convenient form, as in this pamphlet.

"Cresoted Timber; Its Preparation and Uses." The Norfolk, Va., Creosoting Company. Published for the company by the Haywoods, Philadelphia. Pages, 92; illustrated.

This is something more than a trade catalogue, for while it refers to the work of the Norfolk Creosoting Company, it contains also much interesting information with regard to the various causes of decay and deterioration of timber and the methods of preservation, especially the use of dead oil of coal tar. The methods of applying the antiseptic are described, and the results shown by numerous examples. In addition to this a number of tables convenient for engineers are given, so that the book is likely to be preserved for reference.

"Indice del Commercio Americano: Directorio Descriptivo y Clasificade de los Miembros de la Associacion Nacional de Manufactureros de los Estados Unidos." Philadelphia; the National Association of Manufacturers. Pages, 360.

The National Association of Manufacturers has shown commendable enterprise in getting out this Spanish edition of the "Directory" of members and their occupations, the nature of their products and other particulars which a merchant or buyer is likely to need. The association has for some time past turned its attention to South America as a promising field for trade, and this Spanish work is one of the preliminaries which it has considered necessary in this work.

"The A1 Universal Commercial Electric Telegraphic Code." By W. Clauson-Thue. New York; the American Code Company. Pages, 1,240. Price, $7.50.

The telegraphic code is indispensable in these days of constant and necessary use of the telegraph in business of all kinds. The preparation of a code which is sufficiently elastic to cover the range necessary for an extensive business, and is at the same time coherent and intelligible, is no easy matter. It requires a great deal of labor of a rather monotonous kind and a thorough familiarity with the requirements. Mr Clauson-Thue has all the qualifications necessary for the work, including long experience, and his codes are generally accepted as standard. The new code is comprehensive enough to suit almost any business man or engineer, and to cover all that he is likely to need. To those who are familiar with its predecessors it requires no further recommendation.

BOOKS RECEIVED.

In sending books for notice, will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Jaurnal.

"Proceedings of the Australasian Institute of Mining Engineers." First Ordinary Meeting, 1899. Melbourne, Victoria; published by the Institute. Pamphlet.

"New Mineral Discoveries in Nova Scotia." By Edwin Gilpin, Jr. Halifax, N. S.; Reprinted from the "Transactions" of the Nova Scotian Institute of Science. Pamphlet, pages 12.

Geological Survey of Canada. "Descriptive Note on the Sydney Coalfield, Cape Breton, Nova Scotia." By Hugh Fletcher. Ottawa, Canada; Dominion Printer. Pages, 16; with maps and tables.

"The Characteristics and Conditions of the Technical Progress of the Nineteenth Century." By James Douglas. New York; Reprinted for the Author from the "Transactions" of the American Institute of Mining Engineers. Pamphlet, pages 20.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials will only be published when so requested.

Letters should be addressed to the MANAGING EDITOR.

We do not hold ourselves responsible for the opinions expressed by correspondents.

The Winston District, Montana.

Sir: A work that has attracted unusual attention from mining, business men and farmers in this section of Montana has been the driving of Tunnel No. 4 on the East Pacific Mine, which encountered pay ore within the last 30 days at a distance of 2,035 ft. from the tunnel entrance. It was a work that would demonstrate the continuance of the pay shoot to greater depths, and upon this fact depended, in a great measure, deep mining in the district. Hence the great interest in the project.

Mr. R. A. Bell is the owner of the East Pacific Mine, comprising a group of six patented claims. The cost of driving Tunnel No. 4 on the East Pacific Mine has been more than $30,000, but the result has demonstrated his judgment as to the continuance of the ore bodies to greater depths, and will have the effect of stimulating other companies in this district to renewed efforts.

The East Pacific Mine is situated in the mountains of Beaver Creek, 6 miles south of the Northern Pacific Railroad at Winston, and 27 miles from Helena. The ore in the new strike in No. 4 Tunnel assays from $75 to $125 per ton, in gold, silver and lead, and as the upper workings have demonstrated that this ore shoot is 1,500 ft. in length along the vein, and as Tunnel No. 4 is 200 ft. below the lowest upper workings, it is plain that there is a large body of ore practically in sight. As yet this large body of ore has not been touched, except by the tunnel as it is driven, but in order to still further increase the ore reserves, Mr. Bell intends to begin the sinking of a double-compartment shaft within the tunnel, when it has reached a distance of about 3,000 ft. in length. This shaft will be sunk to a depth of 1,000 ft., and levels run on the presumably continuous ore shoot.

The East Pacific Mine has been a steady producer for the past 12 years, with the exception of about two years, when it was closed by the former owners, between the years 1893 and 1896. It has paid the former owners and present owner, in round numbers, the sum of $467,000.

The mine is equipped with a steam engine, boiler, and air compressor for mining power drills, fine sleeping apartments for the men, with baths, boarding house, store and office, stables, etc. Recently a new ore house has been completed at Tunnel No. 4, where the ore is dumped directly into chutes and loaded automatically into wagons for transportation to the railroad at Winston, where it is loaded into cars and shipped to the East Helena Smelter, a distance of 15 miles.

Other extensive improvements are contemplated by Mr. Bell in the near future. On Beaver Creek, 2½ miles from the mine, he has had cut 650,000 ft. of lumber for the use of the mine, and also for the further purpose of putting in an 800-ft. flume, preparatory to the establishment of an electric plant of 300 H. P. This plant, when completed, will furnish cheap power and light for the entire mine and will make the East Pacific one of the best equipped mines in the State of Montana.

The country rock, or bedding plane, in this region, is mostly dioritic slate, and the East Pacific is in a mountain of this material, and its strike is nearly due east and west. Its dip is nil, as the vein in its general descending course is perpendicular.

About one mile south of the East Pacific Mine is the Stray Horse, discovered by Connon Brothers, and sold to the Ajax Mining Company for $100,000. It is developed by three tunnels and a shaft, and a large amount of ore was treated from the upper workings with good returns. At present the mine is idle. but the lower tunnel shows a great quantity of ore which is second class, or of too low grade to bear shipment. There is also a large quantity of second-class ore on the dump. The owners of the mine will doubtless build a concentrator for treating this ore, as it will pay to concentrate; then work will be resumed.

The January is property of much promise, lying between the Stray Horse and East Pacific. It is developed by tunnel to a distance of 1,000 ft., and some fine lead ores carrying high values in gold were treated. But most of the ore thus far encountered lies below the tunnel and it will require greater depth to extract it. I understand the main tunnel is to be driven on, however, with the expectation of striking a more extensive pay shoot at much greater depth in the mountain.

In Iron Gulch, two miles east of the East Pacific, lie the Iron Age and H. H. mines. Both have been large producers of shipping ore and are still sending a quantity of ore to the smelters, but neither are worked at great depth. On encountering the sulphide ores the values decreased, and sufficient depth has not been attained to demonstrate the existence of higher grade ores below.

There are several other properties in Iron Age Gulch that are producing regularly good shipping ores. Among these are the Stolen Sweets, a good gold proposition.

Twelve miles south of Winston is the Park District, which has been a producer of valuable ores for years. W.

Winston, Mont., Feb. 15, 1900.

COAL IN ITALY.—United States Ambassador Draper, in a note to the State Department, calls attention to present scarcity and high price of coal in Italy, and adds: "The situation, I think, is worthy the attention of coal mining enterprises in the United States. Italy depends mainly upon England for coal, and the price to the consumer is always high, even in times of peace; now it has gone up enormously. In view of these facts—the Italian high prices, the low cost per ton of American coal at the seaboard, and the ocean freight rates—it appears to me that a large margin of profit is offered to American coai exporters. I may add that some exporters in England deem it wise, when they fill an order for Italy, to insist upon payment upon delivery of invoices; otherwise, vexatious objections are apt to be made, and the cargo may be disposed of at a disadvantage."

EDWARD BATES DORSEY.

We have just received information of the death in London of Mr. Edward Bates Dorsey, the well-known engineer. Mr. Dorsey was born in England 67 years ago, and began his work as an engineer at an early age. From 1852 to 1854 he was engaged as assistant to the late Alfred Duvall, in his surveys in Northern Peru. In 1854 he took charge as superintendent and mining engineer of the mines of Don Bernardino Codecido, in Chile, and remained there for several years. He went to California about 1859, and from 1861 to 1864 he was superintendent and part owner of the Mexican Mill, at Empire City, Nevada. From 1864 on he was employed chiefly as consulting engineer, and examined and made reports on many mines in California, Nevada and different countries in South America, chiefly for English clients. Later, about 1880, he paid more attention to civil engineering, and especially to railroad construction, and for several years was consulting engineer for some British capitalists, who had large investments in American railroads. He passed a large part of his time in the United States, and made expert examinations of a number of our railroad properties. For the last five years or so he had been less active, and resided chiefly in London, his latest visit to the United States having been made about three years ago.

Mr. Dorsey became a member of the American Society of Civil Engineers in 1879, and from that time on took much interest in its proceedings. He contributed to the proceedings important papers on "Structural Steel" and on "Irrigation." The papers which excited the most attention, however, were a series of three comparing English and American railroads, in construction, management and operating costs. For the first of these papers he received the Norman medal of the society in 1886. The discussion called out by these papers was animated, and in some cases very sharp, but their effect was marked, and there is no doubt that they led many American engineers to investigate European practice more carefully than they ever had done before, and to adopt many modifications derived from this study.

COAL PRODUCTION IN SPAIN.

The total production of coal in Spain in 1899 is given by the "Revista Minera" as below, in metric tons:

	1898.	1899.	Inc.	Per ct.
Coal	2,434,232	2,672,194	237,962	9.8
Lignite	66,422	70,195	3,773	5.7
Totals	2,500,654	2,742,389	241,735	9.6

Imports of fuel from abroad in 1899 increased 1,584,999 tons coal and 290,717 tons coke. The exports of coal were small, 8,084 tons only. The approximate consumption of coal and coke in Spain during the year was, therefore, 4,609,525 tons. Considerably more than half the coal was mined in the Province of Oviedo, where the mines turned out 1,604,028 tons last year.

The production of coke in Spain in 1899 is estimated at 521,901 metric tons, of which 354,901 tons was metallurgical coke, made at the mines, and 170,000 tons was coke from the gas works in the cities. The increase over 1898 was 36,953 tons. Nearly all the furnace coke was made by three companies, Viscaya and San Francisco del Desierto, in Bilbao, and the Mieres Company in the Asturias. The production of briquettes in 1899 was 382,666 tons, a decrease of 7,529 tons as compared with the previous year.

NEW COLLIERIES IN FRANCE.—The two new shafts of 4 m. diameter which are being put down at the Ronchamps Colliery, in the east of France, have, after passing through more than 600 m. of red sandstone, struck the coal measures at the depth of 765 m. (2,509 ft.). One meter of shaft has lately been sunk and lined daily, the lining of cement-concrete blocks, made on the spot, coming cheaper than cut stone.

RUSSIAN OIL PRODUCTION.—The Russian "Board of Trade Gazette" gives the following figures about the production of petroleum at Baku. In 1899 the total production amounted to 524,200,000 poods, against 486,000,000 in the previous year, thus showing an increase for last year of 38,200,000 poods. The total production last year was equivalent to 8,586,396 metric tons.

GERMAN RAILROAD BUILDING IN CHINA.—United States Ambassador White sends from Berlin a copy of an official publication dealing with the development of the Kyaochau District, from which the following extract is taken: "On June 1st, 1899, the concession for the construction and management of a railway from Tsingtau, via Wei-hsien to Isi-nan-fu, the provincial metropolis of Shantung, with a branch line to Po-shan was granted by the chancellor of the empire to a syndicate representing a wide circle of German industries and mercantile interests. This company was organized about June 14th, 1899, as the Shantung Railway Company, with headquarters in Berlin. The removal of the headquarters to Tsingtau, conformably to the terms of concession, is already in progress. The company has a capital of $12,852,000, of which $3,213,000 has already been deposited. The company has pledged itself to build and put in operation the road within five years, and the extension line from Tsingtau to Wei-hsien within a period of three years. The united length of these roads will be about 280 miles—the branch line Tsingtau-Wei-hsien, 112 miles. By the establishment of these roads the great coal districts in the north of the Province of Shantung will be united in a practical way with the important districts between Tsingtau and Isi-nan-fu. The delivery of the superstructure materials for the entire railway, the contracts for the delivery and setting up of bridges, as well as for the requisite locomotives, passenger, freight and coal cars, have been given to German enterprises by the Berlin division of the company. The stock already contracted for approximates in value to about $4,760,000. Contracts for the shipment of this material to Tsingtau have been made with German steamship companies."

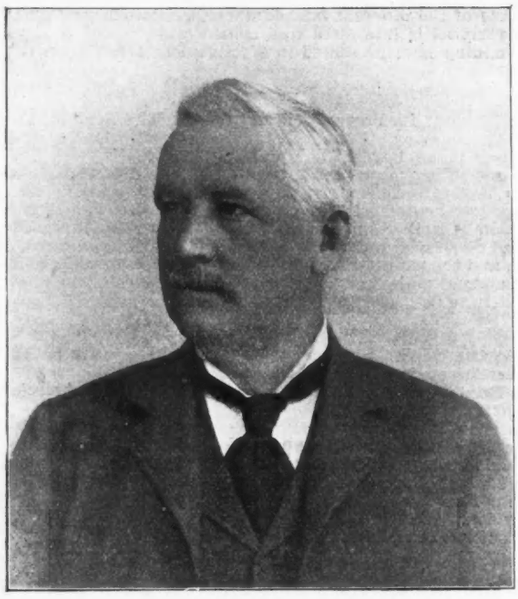
RICHARD MACKINTOSH.

By Our Special Correspondent.

One of the best known and most genial spirits of the early days in Western mining, passed over the Great Divide on February 21st, at Salt Lake City. Richard Mackintosh was a pioneer on the Comstock and knew all the prominent actors of the decade prior to 1870. A lad of 19, he landed in San Francisco in 1858, and went into gold mining; two years later, when the stampede to Virginia City took place, he was among the first to cross the Sierra Nevadas. In Virginia City he amassed a considerable fortune. He remained in Nevada for 20 years, changing his residence in 1871 to Salt Lake, where he soon became one of the foremost citizens of Utah. His death is a great loss to Salt Lake and the State.

Judge C. C. Goodwin, speaking of him as "a friend and often closer than a brother," continued: "He made his fight for a fortune single handed, and though often baffled and disappointed, and though often his hopes were unfulfilled, he never for a moment permitted his heart to grow cold; never was there a moment when his genial and generous nature did not meet his friends more than half way. His home was a welcome place for friends; he enjoyed his table most when his friends were around it, and when he built his new home, though he was childless, his dining room was the most spacious room. He was intensely proud of his family name; he would rather have died than to have had the slightest taint cast upon it, but he had none of the foolish pride which refused to measure men fairly, according to their deserts in brain and heart, without regard to fortunes."

His father was Captain William Mackintosh of the Ninety-third Highlanders, and Richard was born in Dublin, Ireland. He grew up in the



RICHARD MACKINTOSH.

army and became a lieutenant, when he determined to strike out into the world on his own account. He married in Salt Lake 20 years ago and had been a widower for five years. He was an ardent and sincere American citizen, though a champion of all that is best in his native land.

Mr. Mackintosh established the Pioneer Sampler at Sandy, in the Salt Lake Valley, and afterward the Mackintosh Sampler at Park City. At the time of his death he owned numerous mining interests in Nevada and Utah. In Nevada his chief holdings were in the Diamond and Excelsior mines, at Eureka. He had no desire for political office. He was one of the Utah Commissioners to the World's Fair in 1893 and a member of the Utah Constitutional Convention in 1895. He was a director of the Utah & Pacific Railway Company, a former president and a prominent member of the Alta Club.

He died of cancer of the stomach, and though for fully two years he has been gradually failing, he never lost heart or courage up to the final hour.

Funeral services were held on February 23d, at the late residence of the deceased, Rev. D. Douglas Wallace officiating. The pall bearers were: Messrs. W. S. McCornick, David Keith, J. E. Dooly, R. C. Chambers, Charles Read, George M. Scott, Judge John A. Marshall and Judge C. C. Goodwin.

DEMAND FOR COAL IN ENGLAND.—In consequence of the abnormal demand for coal, says the London "Engineer," the trustees of the Duke of Bridgewater have recommenced winding coal from the quarters' seam at their Charlton's Colliery, Greenheyes, which had been closed many years. This development finds employment for 60 or 70 men. The Bridgewater Trust are also reopening a mine at their Brackley Colliery, Greenheyes, which was closed two or three years ago. They are also sinking a new mine at the Wharton Hall Colliery, Greenheyes, and are carrying out important and costly improvements at their Mossley Common and Bridgewater pits.

SOME NOTES ON THE BROWN IRON ORES OF GEORGIA.*

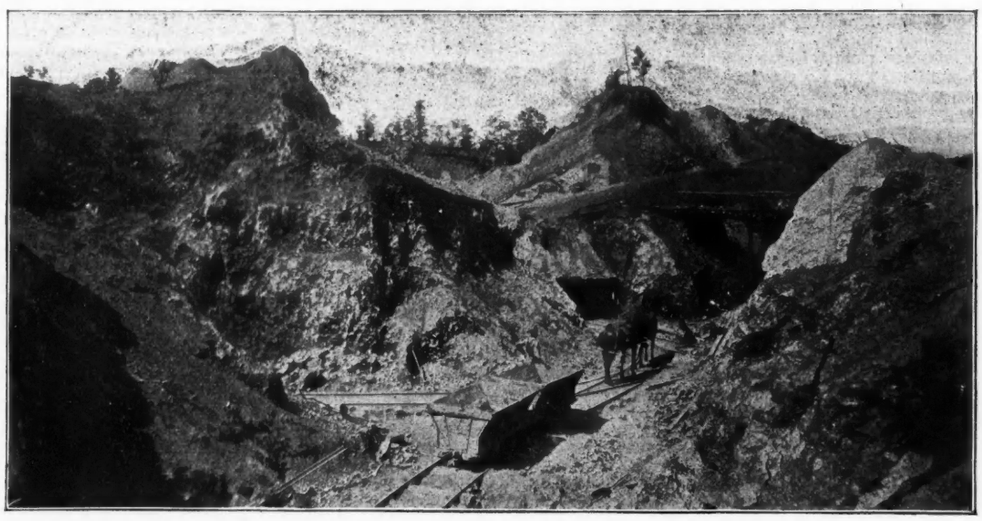
Written for the Engineering and Mining Journal by S. W. McCallie, Assistant State Geologist.

The brown iron ores of Georgia, which are at present attracting the most attention, are confined mainly to the northwestern part of the State, in what is known as the Paleozoic area. Many of these deposits are quite extensive, and have, in the last few years, yielded large quantities of high grade ores. These ores occur chiefly in the Lower Silurian formation, but are also found associated with the Carboniferous and the Cambrian deposits.

The most abundant iron deposits of the Lower Silurian exist in what is known as the Knox Dolomite series, which series consists of an extensive magnesian limestone deposit, with a maximum thickness of more than 3,000 ft. This magnesian formation often contains an abundance of chert and usually gives rise to low, well-rounded ridges, along which the iron ore deposits most generally occur. The ore is found in pockets, or irregular deposits, in the residual clays that have resulted from the weathering of the magnesian limestones. In connection with these ores, frequently more or less chert and manganese are found. In the more valuable deposits, however, these impurities are rarely ever present in sufficient quantities to effect the commercial value of the ores. The extent of the deposits is quite variable. In some cases the banks contain only a few tons, while others have produced several thousand car-loads. It is said that the Ledbetter Mine, which covers an area of about 10 acres, has paid a royalty of $30,000, at the rate of 25c. per ton, and the ore is by no means yet exhausted. The ores are present in the bank in the form of gravels, nodules, or huge masses, the later often weighing several tons. In some cases the ore is porous, or honeycombed, but more generally it is compact and free from all foreign material.

The former method of mining these ores was by means of the shovel, pick, and screen, but in the last few years steam shovels and log-washers have been introduced, and as the result, the cost of mining has been reduced in some instances to as low as 40c. per ton. This amount pays the entire cost, not of mining alone, but of washing and placing the ore aboard the cars ready for shipment to the furnaces.

The screen method of working the ores is still adopted where the banks are small, or where the deposits are unfavorably located for obtaining water for washing purposes. This method, however, is necessarily wasteful as all of the fine grained ore is left on the dump. Some of these dumps are now being profitably worked by means of the log-washer.



STATE LINE ORE BANK, ETNA VALLEY, POLK COUNTY, GEORGIA.—SHOWING POCKET FORM OF ORE DEPOSIT.

With but few exceptions the ores are mined by open cuts varying in depth from 5 to 60 ft., or to water level. The extent of the ores varies greatly in depth in different localities. In one instance, at Oredell in Etna Valley, a bore-hole demonstrated the fact that these brown ores extend to the depth of more than 175 ft. below the surface of the valley. Valuable deposits in the vicinity of Cedartown have been worked to the depth of 70 ft., without any apparent decrease in the richness of the deposit. It seems quite probable that in many cases these deposits are limited only by the magnesian limestone which underlies the residual clays in which the ores occur. It often happens that the ore deposit is interrupted by huge masses of clays, technically known as "horses." These clays are usually vari-colored, but often they are almost white, and are comparatively pure kaolins.

CRIPPLE CREEK ORE BANK, SUGAR HILL, BARBOUR COUNTY, GEORGIA.—SHOWING BLANKET DEPOSIT.

The locations of the ore deposits, as a general rule, are indicated by the occurrence of more or less float ore strewn upon the surface. The abundance of ore upon the surface, however, is not always a criterion of the quantity of the ore below. It often happens that the surface ore is not very abundant, but beneath valuable and extensive deposits may frequently be found; while on the other hand, an extensive surface out-

*By permission of the State Geologist of Geogia.

cropping is sometimes found to be quite limited in depth. One of the most valuable deposits in the vicinity of Cedartown, the Lindsey Bank, has a remarkably poor surface prospect. The only surface indication here to be seen is a few scattering boulders occurring in a heavy mantle of chert, while beneath this mantle, which is only a few feet in thickness, the ore occurs in considerable abundance in the mottled, red clays.

The ores of the Knox Dolomite series run high in metallic iron and low in sulphur and phosphorus. From a number of analyses made by Messrs. Cooper & Hewitt at Riegelsville, Pennsylvania, the following results were obtained: Metallic iron, from 48.45 to 51.10; metallic manganese, from 0.20 to 5.60; silica, from 2.40 to 7.87; phosphorus, from 0.147 to 0.858.

Sometimes these brown ores yield a higher per cent. of metallic iron than the theoretical limonite. This is evidently due to a partial metamorphism, as is shown by the red color of the ore

The iron ores of the Cambrian formation occur associated with sandstone, mica-schists and slates. These ores have been worked extensively in Bartow County, where they occur in the vicinity of what is known as the Cartersville fault, which is the line of demarkation between the Crystalline and Paleozoic areas. The Cambrian brown ores differ somewhat in their character and mode of occurrence from those of the Knox Dolomite series. In some cases these ores have been metamorphosed and as a result in a few instances they partake of the nature of true hematite. This is especially true in the neighborhood of Emerson, where extensive mining operations have been carried on for a number of years.

The ore deposits in this district often assume the character of true veins. These veins vary in thickness from a few feet to several rods, and extend to a greater depth than has so far been reached by the present method of mining. The Wheeler Mine, located some 3 miles north of Emerson, is one of the best illustrations of this class of deposits. The vein here is quite variable in thickness, and has been successfully worked along its out-croppings for nearly ¼ mile, to the depth, in places, of 40 ft. or more. The walling on either side consists of mica-schists highly contorted and frequently more or less altered into brown iron ore. Especially is this true of the schists in immediate contact with the vein.

In the northern part of Bartow County, in what is known as the Sugar Hill District, the ores partake of the nature of a blanket deposit, and are found principally in the residual clays and partially decomposed slates overlying the sandstone. These blanket deposits are quite valuable because of their richness, and the cheapness with which the ores can be mined. In other localities, in the neighborhood of Bufford, the ores occur in pockets and irregular deposits as in the Knox Dolomite series.

The Cambrian ores are always free from cherty material, but this impurity is frequently replaced by silicious material in the form of sandstone, which thus renders the chemical analyses of the Knox Dolomite and the Cambrian ores very similar in character.

The Carboniferous ores occur chiefly in the lower division of this formation associated with the Fort Payne chert. These deposits have been more or less extensively worked along the eastern foot hills of Horn Mountain in Sugar Valley. They are also reported to occur upon the western side of Big Texas Valley. These deposits are apparently not so extensive or valuable as the Silurian or Cambrian deposits. Nevertheless they are of considerable economic importance, especially those in the Sugar Valley District. The ores are found associated with chert and are similar in character to the ores of the Knox Dolomite series.

Besides the brown ore deposits of the Paleozoic area, there are also to be found in northwest Georgia, in the Crystalline area along the Atlanta, Knoxville & Northern Railroad, valuable deposits of brown ores which are so far practically undeveloped.

The more extensive mining operations now being carried on in the State are confined mainly to Polk and Bartow counties. Since the civil war the brown ores of these counties have been mined on a more or less extensive scale. Prior to that time, in the latter county, they were mined to a considerable extent, and were reduced in small charcoal furnaces, the remains of which are still to be seen at various places in the county.

The present output from the mines of Polk and Bartow, which amounts to something like 75 carloads daily, is shipped chiefly to Birmingham, Rock Run, Chattanooga and South Pittsburg, where it is used in the furnaces with the fossiliferous ores. Within the past few days a 50-ton charcoal furnace has been put in blast at Cedartown, which is supplied entirely with the brown iron ores of that vicinity. There is also a small furnace in operation at Rome, using a limited amount of the brown ores. With these two exceptions, all the ores mined in these counties are shipped beyond the limits of the State.

A personal examination of all the iron ore deposits of these counties, made by the writer during the past summer, warrants the statement that the ores are extensive and need only to be developed to be of great commercial value. The interest now being manifested in mining operations in the neighborhood of Cedartown, is attracting considerable attention. In the last few months, several thousand acres of land known to contain valuable ore deposits have changed hands, and a railroad is now being constructed to facilitate the transportation of the ores. Many mines which have long remained idle on account of the low price of the ores are now being opened up, and the outlook for the future seems to be very encouraging.

GERMAN COAL MINES.—The apportioned output of the Rhenish Westphalian collieries, originally fixed by the syndicate at 52,397,758 tons, was reduced by voluntary proposition to 51,296,461 tons; and the actual output was 48,024,014 tons, the difference between these two last named figures thus representing 6.33 per cent., while the corresponding ratio for 1898 was 7.5 per cent. Last year the outturn of the syndicated coke ovens amounted to 7,041,887 tons (against 6,424,060 tons in 1898), the sales representing a total of 6,816,964 tons.

TIME IN COKE MAKING.

Written for the Engineering and Mining Journal by William Gilbert Irwin.

Time in coke making has long been one of the important questions with coke makers and for years the leading operators have been seeking for means to economize in this respect and at the same time to maintain the standard of excellence requisite in an efficient furnace and foundry fuel. But no real progress has ever been made along this line so far as concerns the bee-hive oven, which type is in general use in the Connellsville region, and in other important coke regions.

The present unprecedented demand for coke has given a renewed interest to experiments in shortening the time required in the processes of coking, for at the present high prices even the saving of a few hours will mean a decided increase in the annual profits of the industry. The H. C. Frick Coke Company, the Southwest Connellsville Coke Company, controlled by the Frick Company, and the McClure Coke Company, all of whose plants are located in the Connellsville Region, are now experimenting along this line, but no definite results have been obtained.

It is doubtful whether experiments, where the bee-hive oven is the type, will ever be productive of results. It is the old story of attempting to improve upon nature with natural means. It is scarcely expected that the chemical process of coking can be made to differ materially in the same type of oven, but in order to accomplish this result improvements in the oven itself must be made. When this is done, as in the different retort types and in several cases in the bee-hive oven, it is possible to shorten the cooking processes as well as to modify other features of coke making as exemplified in the ordinary oven.

The first coke ever made in the Connellsville Region was made in open ricks on the ground, and so far as the chemical enrichment of the product is concerned the bee-hive oven possesses few advantages over this primitive method. In the winter of 1841 the first ovens were put in operation near Connellsville. There were but two of them and were of the bee-hive pattern, with a 14-in. rise and a flat crown and held 65 bushels of raw coal. The bee-hive oven now in use is too well known to require description here and comparisons with the pioneer type can readily be made.

The object sought in coking is to expel from the coal the water, hydrocarbons and the volatizable sulphur and leave a residuum of fixed carbon, ash and such parts of sulphur as cannot be volatilized. As to the type of oven in which this may best be done the following analysis will readily show.

	Connellsville coking coal.	Bee-hive coke.	Retort coke.
Water	1.30	0.32	0.28
Volatile matter	29.812	0.88	1.14
Fixed carbon	60.38	88.86	86.42
Sulphur	0.609	0.82	0.62
Ash	7.849	9.82	11.54

While it is impossible to obtain the exact composition of any great bulk of coal or coke from the fact of the varying conditions the above will give some idea of the comparative composition of the coke produced from Connellsville coking coal by the two methods. In the bee-hive oven it is not possible to get the same uniform results as are obtained in the tight chambers of the various retort oven systems, and this being true the same difficulties will be experienced in curtailing the coking process as to time.

In the different experiments along this line with the bee-hive ovens various methods have been employed. The charge has been decreased and increased, air has been introduced by increased natural draft and by artificial means, but with no decided results and the effect has at the same time been to lower the grade of the product. At the Tarr Station Plant of the Southwest Connellsville Coke Company a novelty was introduced about two years ago which was expected to accomplish much toward reducing the time of coking. Sixteen ovens of the bee-hive type were constructed so that the charge was made into a trunnel head on top of the oven. Near the top of the oven and just above the charge when it was leveled were a series of 1½-in. holes which were provided at intervals of 4 in. on the four side of the oven. By this arrangement there was no draught up through the coal, but a stronger draught on top of the charge. At the back of the oven there was an opening for the exit of smoke and gas and during the coking process the trunnel head on top of the oven was closed. From the exit at the back of the oven the escaping substances were conducted through flues under the oven to the chimneys at the front and thus additional heat for the cooking process was obtained, which was thus shortened. This system has been operated with partial success.

At Latrobe, Pa., a style of the bee-hive by-product oven was put in operation several years ago. In this process the time was reduced to 30 hours, but the product was of an inferior quality. The Otto Hoffman by-product system has been operated at different places in the Connellsville Region and at other places in Western Pennsylvania with varying success.

The Laughlin Furnace Company of Pittsburg has been experimenting with a new idea in the retort oven, the invention of a member of the company, and has been making 24-hour coke for two or three years, but does not do so exclusively. The most successful system of the new type seems to be the Semet-Solvay system, of which there are a number of plants in operation in Western Pennsylvania. A good quality of coke is obtained by this system in 36 hours and at the same time all the by-products are utilized.

Aside from the economy in time the adoption of the by-product oven types is being used as a step toward the abatement of smoke. Leaving out the question of increased production through the reduction of the time required for coking the by-products would for Western Pennsylvania reach $10,000,000 annually, while at present this is a total loss. Altogether it is not reasonable to hope for any decided results in the reduction of time in coking until the industry shall have been placed on scientific lines by the general adoption of the by-product type of oven.

THE WASHINGTON MEETING OF THE AMERICAN INSTITUTE OF MINING ENGINEERS.

Specially Reported for The Engineering and Mining Journal.

The seventy-eighth meeting of this body was convened in one of the lecture rooms of the Columbian University at 8 p. m., Tuesday evening, February 20th, President James Douglass in the chair. After addresses of welcome by Mr. Wight and Mr. C. D. Walcott and a reply by President Douglass, Director Walcott, of the United States Geological Survey, presented a very interesting paper on "The Work of the United States Geological Survey in Relation to the Mineral Resources and Mining Industries of the United States," and Mr. G. K. Gilbert, of the Survey, exhibited a complete and beautiful series of lantern views of Alaskan scenery, both coast and inland. The photographs from which these views were made were obtained during a trip undertaken last summer for the Survey, and excellent taste was displayed in the choice and arrangement of typical views.

The second session was called to order by the President, James Douglass, Wednesday morning, February 21st. The report of the Council was read by Dr. R. W. Raymond, Secretary, and the members proposed, as per list already sent out, were elected. The papers announced for the day were: "Notes on the Nome Gold Mining District, Alaska," by F. C. Schrader and A. H. Brooks; "Hydrographic Investigations of the United States Geological Survey in their Relation to Mining," by F. H. Newell; "Some Principles Controlling the Deposition of Ores," by Prof. C. R. Van Hise; "Mica Deposits and Mica Mining in the United States," by J. A. Holmes.

WHEELER ORE-BANK, NEAR EMERSON, BARTOW COUNTY, GEORGIA, SHOWING VEIN DEPOSIT.

Before the reading of the papers President Douglass spoke briefly of the late Thomas Egleston, one of the most active and useful members of the Institute, deploring his death and expressing the feeling, which he was sure was shared by the entire Institute, that we had lost one of the best members. Mr. George F. Kunz had prepared a biographical notice of Prof. Egleston, but was not able to be present. It will, however, be published in full in the "Transactions." Mr. Van Hise then presented his paper on "Some Principles Controlling the Deposition of Ores," discussing the action of ascending and descending currents of water, cross currents, cross joints and fractures. He laid special stress on the fact that hardly any ore deposit presents a simple problem with respect to its origin or distribution. The more study given to ore deposits the more we are inclined to believe that there are many different factors at work on even the simplest deposit. Mr. Van Hise proposed three groups of ore deposits, those made by ascending waters, those made by descending waters and those due to ascending and descending currents combined.

President Douglass spoke of the paper as a notable contribution to the philosophy of ore deposition, however much one may be inclined to differ from some of his views. By way of a further contribution to this subject he hoped that the United States Geological Survey would send trained men into the Southwest; for in this arid region there were unusual opportunities for the study of the effect of meager waterfall and almost instantaneous absorption upon the formation of ore bodies.

Dr. Raymond said that the paper was of great interest as it was a logical grouping of many facts hitherto unconnected; but Mr. Van Hise did not differ from Posepny as much as he thought he did. He was disposed to take issue with Mr. Van Hise as to the exclusion of volcanic agencies in forcing water up from below; that gravity was by no means the sole agency in the circulation of water in the crust of the earth, and we had to consider other factors as well.

Mr. Van Hise replied to the criticisms of Dr. Raymond and to the questions asked, and there was an animated discussion, shared by many members who are especially interested in ore deposits.

The morning session was entirely consumed in the discussions on Mr. Van Hise's paper. In the afternoon a large party visited the United States Navy Yard, where the officials showed the latest improvements in the designing of vessels and their equipment. The large tank where displacement experiments are conducted was an especial object of interest, as well as the new guns, range finders, search lights, etc.

In the evening there was a reception at the Corcoran Art Gallery, where a private view of many of the treasures of this famous collection will be exhibited.

The meeting was well attended, some 160 being present on Wednesday, and the list of papers contained 37. Many of these were read only by title.

The list of members present is as follows: H. S. Chamberlain, Theo. Dwight, David T. Day, A. Thies, Wm. B. Phillips, Thomas M. Chatard, H. C. Perkins, J. F. Tarwater, John Wilkes, R. H. Chapman, D. V. Purington, C. Willard Hayes, W. M. Courtis, J. P. Lihme, J. Bennett Smith, Horace Lee, John Fritz, E. M. McIlvain, E. D. Treadwell, J. B. Randol, Park Painter, H. H. Stoek, Alfrted Raymond, R. W. Raymond, Cabell Whitehead, Chas. D. Walcott, Geo. R. Bentley, S. F. Emmons, B. B. Lawrence, Chas. E. Munroe, J. R. Stanton, Geo. Steiger, F. P. Dewey, F. McM. Stanton, J. C. Smock, H. W. Turner, Theo. D. Rand, F. H. Knight, Chas. A. Matcham, J. A. Holmes, Uriah Qualey, G. F. Knapp, E. S. Cook, Wm. Wilkins, W. J. Seaman, R. H. Richards, Ellen H. Richards, A. R. Ledoux, W. C. Eustis, H. C. King, Taylor Allerdice, A. H. Chester, H. D. Gamble, S. F. Morris, Jos. K. Clark, J. A. W. Lukins, F. Z. Schellenberg, W. A. Clark, Wm. Glenn, A. E. Lee, Clement G. Smith, David Townsend, A. K. Reese, Josiah Pierce, Jr., Arnold Hague, Bailey Willis, Horace See, F. M. Zeller, H. D. Hibbard, J. E. Johnson, W. L. Sheafer, Wm. N. Page, J. A. Capp, W. D. Duffield, M. R. Campbell, W. H. Wiley, Walker T. Russell, Dr. Doyle, G. C. Hewitt, Robt. W. Hunt, Walter H. Weed, W. Lindgren, Geo. Ormrod, H. M. Howe, B. F. Fackenthal, Thos. M. Righter, Geo. E. Somers, John F. Pechin, H. G. Torrey, W. F. Mattes, A. E. Jessup, A. E. Piorkowsky, T. G. Guilford, E. W. Parker, H. B. C. Nitze, C. S. Robinson, Theodore Robinson.

At the session on Thursday morning, February 22d, the first paper was that of F. C. Schrader and A. H. Brooks, "Notes on the Nome Gold Mining District, Alaska." It was read by Mr. Brooks and was well illustrated by means of stereopticon views. The authors incline to the belief that the origin of the gold in the beach sands has to be sought in the tundra first and in the range of hills back of the tundra ultimately. Whether or no there are to be found well defined metalliferous veins in the hills is not now in evidence, as very little prospecting has been done there. Attention was called to the scarcity of timber at Cape Nome and the disadvantages under which mining would be carried on for this reason. But so long as the washing is restricted to somewhat narrow areas, and no great amount of fluming is required perhaps the scarcity of timber will not be so seriously felt as would be the case in some other placer districts. The next paper read was that by Prof. J. A. Holmes, "Mica Deposits and Mica Mining in the United States." Prof. Holmes has visited most of the mica regions of the country and prepared for the United States Geological Survey a full report on mica, which was published last year. It is impossible at this time to give an abstract of the paper or, indeed, of any of the more important papers read, for the reason that very few of them are in print as yet. A full account of such papers as would interest the readers of the "Engineering and Mining Journal" will appear in our columns at an early date.

Mr. Newell's paper on "Hydrographic Investigations of the United States Geological Survey in Their Relation to Mining," was read by the author and well illustrated by maps and drawings. These investigations concern the arid portions of the West more than any other section of the country at present, but in view of the rapid destruction of our forests and the changes in climate induced by this, other portions of the country are likely to be affected sooner, perhaps, than some people are inclined to think.

The afternoon of Thursday was devoted to an excursion to Mount

Vernon, and as it was the 22d day of the month it was appropriate that the Institute should honor the memory of Washington, although not exactly an engineer, or at least, a mining engineer, Washington began life as a surveyor and a good surveyor is not a bad thing around a mine. The Jacob's staff may not be a very accurate instrument, but it was the best available 100 years ago. Thursday evening was spent in visiting the Congressional Library, whose inner workings were exhibited to an admiring crowd of visitors.

On Friday morning the session opened with the paper on "Cle-Elum Iron Ores of Washington," by Bailey Willis. On the average these ores seem to carry about 42% of iron, 0.09% phosphorus, 7% silica, and about 20% of alumina. The deposit is of greater extent than was formerly supposed. Samples carrying 60% of iron have been obtained, but the average content of iron is much below this figure. The paper was discussed by C. R. Van Hise, W. M. Courtis and Cabell Whitehead.

Mr. T. Guilford Smith then read his paper on "Gruson Turrets for Coast Defences," and announced that a model of the turret would be on exhibition Friday afternoon and Saturday. While the subject of coast defence does not fall within the province of the Institute, yet the method of making the cast-iron pieces for the turrets is a metallurgical problem, and of great importance to iron and steel men. Mr. Smith stated that it had been possible to make a chill 2½ and 3 in. deep on these pieces, but did not explain how it was done, not did he enter at all upon the metallurgical and mechanical questions involved. The efficiency of the turrets, which are of turtle-back shape and intended for erection on land, depends upon their convex shape and the hardness of the metal, or rather its resistance to violent shock. Many of these turrets are in use abroad and an establishment for their manufacture in this country is to be erected near Chester, Pa. They have withstood the severest tests, especially those applied by the Italian Government at Spezzia, and are likely to direct attention anew to the possibilities in cast iron. To put a 3 in. chill on such castings is an achievement in metallurgy and mechanics alike. In discussing the paper Dr. Raymond said he had used a razor made of cast iron, and it was an excellent razor at that, so the range of cast iron is from razors to turrets, and what more can we ask?

Mr. Smith's paper was well illustrated by drawings and photographs.

The last paper of the morning session was read by Mr. Walter Harvey Weed on "Secondary Sulphide Enrichment of Silver Veins," and led to an animated discussion which was shared by the President, James Douglas, R. W. Raymond, Adolph Thies, Cabell Whitehead, C. R. Van Hise and Wm. B. Phillips. Mr. Thies was led to speak of his experiences at Ducktown 25 years ago, in the days of Capt. Raht, and many of the members heard with pleasure this veteran engineer and metallurgist, soon to celebrate his fiftieth year of active service.

An adjournment at 12.30 enabled the members of the Institute to pay their respects to President McKinley, who received them in the East Room of the White House. As the head of the nation the President is also the head of all the industries of the nation, and the mining and metallurgical interests are by no means a small part. The only paper at the afternoon session was that by Clemens C. Jones on "The Roller-Pallet System for the Manufacture of Bricks," after which some of the members visited the map-making rooms of the Geological Survey, while others took in the various sights of the city.

The officers elected for the ensuing year were announced as follows: President, James Douglas; Vice-Presidents, David T. Day, J. B. Randol and W. C. Ralston; Managers, D. H. Bacon, E. N. D'Invilliers, William Kent; Secretary, Rossiter W. Raymond; Treasurer, Theodore D. Rand.

The regular banquet was held at the Arlington, and there was the usual flow of reason and champagne, chiefly the latter. The best thing was Albert Raymond's take-off on the Institute, a la Mr. Dooley, and so good was it that his father would do well to look to his laurels. The younger men are coming along, and the older ones must step lively or fall out of the procession. It comes to all of us, sooner or later, and we make our bow and salute necessity.

MAGNETIC INFLUENCE OF ELECTRIC RAILROADS.—The German Reichstag has had laid before it a memorandum showing the extent to which physical experiments are affected by the working of electric tramways. The memorandum was drawn up by the Imperial Institute of Physico-Technical Experiments, and states the apprehension that magnetic and electrical operations would be disturbed by the electricity borne on overhead wires has, unfortunately, proved to be well founded. The first signs of such disturbances were evident directly this mode of locomotion was started on the Circular Railway, though this was 4 kilometers from the Institute. As the overhead-wire system was extended and the nearer it approached, the more marked became the disturbing effect. Without the protective measures which the managers of the Institute had to take for its immediate surroundings, the use of the magnetic needle would have become next to an impossibility.

THE PATENT OFFICE IN 1899.—The annual report of the Commissioner of Patents for the year 1899, shows that the total receipts of the office amounted to $1,325,457, a sum but twice exceeded since 1836. After deducting the expenditures for the year there was a surplus of $113,673. The number of patents issued, including designs and reissues, was 25,527, a number but once exceeded. The number of patents expiring during the year was 18,135. In proportion to population, more patents were issued to citizens of Connecticut than to those of any other State —one to every 945 inhabitants.

Legislation is recommended limiting the number of appeals in merit and interference cases, and the practice of keeping applications for patents in the office for an indefinite number of years is objected to as tending to stifle the progress of invention. The issuance of patents, the report says, would be greatly expedited by legislation limiting the number of appeals. Congress is asked to amend the trade-mark statutes so as to provide for the registration of trade-marks used in inter-State Commerce.

NOTES ON LEAD SMELTING AND GOLD AND SILVER REFINING.*

V.—COST OF SMELTING SILVER-LEAD ORES.

Written for the Engineering and Mining Journal by Malvern W. Iles.

There are a great many things which go to make up the total costs of smelting the lead ores which are found in the western portion of the United States. The ore mixtures contain, invariably, gold and silver, likewise copper, which must be carefully saved.

Of course the question of locality and transportation, the costs of fuel and fluxes, and the item of labor are the most potent factors; yet there are so many other important items that even a bare enumeration thereof would constitute a formidable list. It would, however, be well to state that the business management is always of paramount importance and that the chemical and metallurgical knowledge available should be of unquestionably high order. There should exist the most amicable relations between the business management and the scientific departments in order to obtain the highest possible results. The important ore-purchasing departments should be at all times in close touch with the person or persons to whom is entrusted the smelting of the ores.

The question of handling the ores, fluxes and fuel to the furnaces is such an intricate one, particularly when the ores are rich in either gold or silver, that the business head should confer with the metallurgist, the ore buyer, the general ore foreman and the mechanical department of the works, if valuable improvements are to be made.

As for the removal of all products from the blast furnace, this is almost wholly of a mechanical nature, and the department of assaying, chemistry and metallurgy has but little to do with the problem so long as the system adopted does not interfere with the tonnage of the blast furnaces. While gigantic strides have been made during the past 12 years in the handling of material to and from the blast furnaces, yet there is much room for improvement, and one has only to go to the large iron blast furnaces in the eastern portion of the United States, and to some of the progressive copper smelters for guides for further improvement.

Aside from the great factors on which we have barely touched, it should never be forgotten that to the furnaces themselves, and to the metallurgist is largely due the cost per ton in smelting the gold, silver and lead ores. The size of the furnace is a very important item, but the general shape, arrangement of parts and convenience in the operation of the furnace is a potent factor in lessening the cost of smelting.

The general healthfulness of the furnaces, where the ore is introduced and where the molten products issue from the furnace, bears directly upon the item of cost per ton. These furnaces are extremely sensitive, both at the top and the bottom, and the most regular work can be done by the most regular men.

The western lead smelters have quite recently recognized the fact that in order to burn carbon fast, oxygen should be supplied fast; and this has led to the introduction of larger volumes of air in a given period. In so doing it became necessary to use higher pressures of air, which has been one of the most important reasons why smelting has been greatly cheapened. When the tonnage was increased by the use of better blowing machinery, and the leaders in smelting introduced blowing engines like those used in the smelting of iron ores, this marked the greatest revolution in the history of this industry. For many years the use of blowing engines was a consuming thought to the writer, and the progressive spirit of the management of the Globe Smelter, at Denver, Colorado, enabled this concept to lead up to a great success.

In order to show the strides which have been made during the past 12 years in this important industry, the following figures are given:

	Average cost per ton for smelting.				
1887	$4.644	1891	$4.170	1895	$2.786
1888	4.530	1892	4.906	1896	2.760
1889	4.480	1893	3.375	1897	2.520
1890	4.374	1894	3.029	1898	2.260

The above figures are the results at one of the large and prosperous lead smelters in the West. The record for each particular year is not only good, but, it is possible, was not surpassed by any other smelter. There is far too much hand labor yet employed, even where the smelting has been lowered to $2.26 per ton, and it is believed that by employing a better system for the handling of the material to and from the blast furnaces improvements will result.

More steam, more compressed air and electrical appliances could be used without excessive cost. The chief item of the cost of smelting is the coke, which is rather poor, when we consider the ash will run from 16½ to 22 per cent. Doubtless this business will call for the introduction of coal washing machinery in order to supply a better product and at no greater cost; and by obtaining lower freight rates, to get both cheaper and better coke.

The proper use of the iron flux, upon which there is now generally a loss, is of importance. As there is a great reduction in the general expenses by obtaining high tonnage, which is often demanded by the conditions of trade and other causes, it will be too often observed that this increased tonnage is due to the use of the expensive iron flux. There is no more serious problem than the careful use of fluxes and fuel. Of course, where the iron fluxes are expensive, it is very necessary to make as silicious a slag as possible without interfering too greatly with the tonnage. To state positively the exact amount is difficult, as it is so wholly dependent upon the zinc, alumina, etc., contained in the slag. We, however, closely approach the truth by stating that the best points will be found near the figures 31 to 34 per cent. silica.

In order to do the cheapest smelting, the percentage of the lime in the slag should be constantly experimented upon. Particularly is this true in the presence of much potash and soda, likewise zinc and alumina.

Whenever the slag runs high in lead add more lime, and continue adding it until the slag runs low in lead. The lead in the slag is some-

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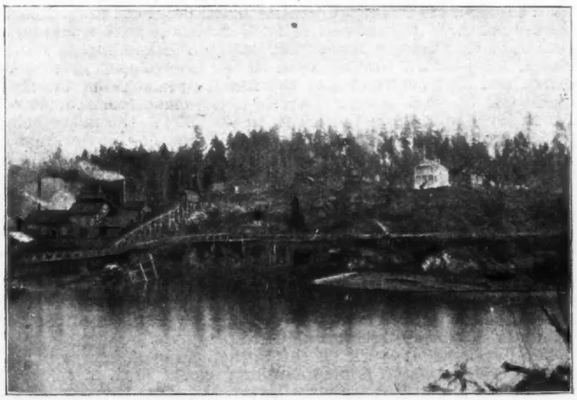
times due, however, to the use of insufficient fuel, too cold water jackets, and, not infrequently, to cracked and leaky water jackets.

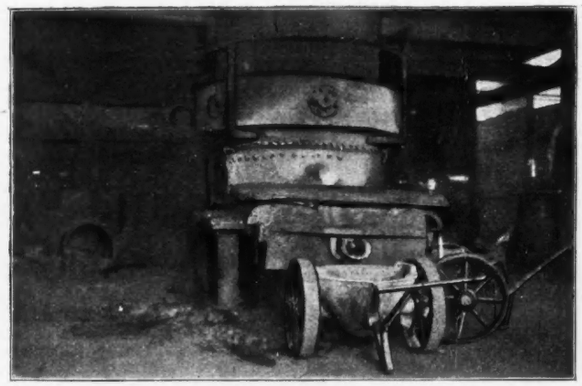
It has been often noted that the lime can be lessened at least 50 per cent. and we still obtain slags comparatively low in lead, but usually such conditions do not prevail for long periods.

It has been very often observed that too great economy in the use of iron flux would not only greatly lessen the tonnage, but cause the silver and the lead to run high in the slag and to produce cold water jackets by crusting up in the neighborhood of the tuyeres. Sometimes silicious slags will figure well upon paper at the office, but will cause the furnaces to drive slow, stick and hang up, darken the tuyeres, freeze up the forehearths and cause everything around and about the furnaces to look like desolation and ruin. Frequently we have run upon silicious slags running from 35 to 37 per cent. and had good tonnage, but these conditions are rare.

As a resumé I desire to particularly emphasize the following facts:

1. Use as little fuel as possible.
2. Use as much air as possible.
3. Use as little fluxes as possible, particularly iron flux, where expensive.
4. Pass all the slag through a reverberatory slag settler.
5. Filter all the fume through cloth.
6. Remove the fume from the blast furnaces by fans and see that the vacuum pressure is at least a quarter of an ounce per square inch.





1.—VAN ANDA SMELTER, TEXADA ISLAND, B. C.
3.—INTERIOR VAN ANDA SMELTER.

2.—SHAFT HOUSE, COPPER QUEEN MINE.
4.—MAIN STREET, VAN ANDA, TEXADA ISLAND, B. B.

In 1886 the usual size of the blast furnaces at the tuyeres was 36 in. wide and 100 in. long, but up to 1899 the cross section at the tuyeres was 42 by 140 in. In 1886 the height of the charge, measured from the center of the tuyeres, was 11 ft., but up to 1899 the height had been increased 5 ft.

In 1886 the blast pressure was 1 lb. per square inch, but in 1899 the pressure had reached a point varying from 3 to 4 lbs. In 1886 the forehearth, or matte settler, had 6 cu. ft. capacity, but up to 1899 this forehearth, called matte box, had 128 cu. ft.

In 1886 much matte was lost by improper settling, but great improvements took place about the latter part of 1891, and not long thereafter the Iles slag settler was perfected and put into successful use. This slag settler consisted in using a large specially constructed reverberatory furnace into which all the slag produced in the blast furnaces was poured, in order to prevent matte losses and incidentally save much lead and copper, besides the silver and gold, not existing in the mattes. In 1886 charcoal was used for smelting, but about 1892 its use had practically ceased, and finally stopped altogether.

In 1886 the slag was removed from the furnaces in pots holding 250 lbs. and pushed by men; but in 1899 we find small industrial locomotives doing this work, hauling from 3,000 to 6,000 lbs. per trip. The practice of handling the matte in 1886 was an awkward, bungling, sloppy, wasteful one, which I am ashamed even to mention; but instead of sputtering over 200 lbs. of matte, we find, in 1899, mules quietly pulling a solidified tray of perfectly pure matte of 2,000 to 3,000 lbs., with hoists, trolley systems and winding drums for handling and dumping the matte.

From 1886 to 1899 there was no process or system which was allowed to rest; changes took place almost daily. Often the question of success or failure hung upon some simple change. There were no books or papers, no person to guide us, but by stimulating an interest in these matters among the workmen, among all the blacksmiths, machinists, the assayers, chemists and metallurgists, great results were accomplished.

BRITISH COLUMBIA.—XXV.

VAN ANDA-TEXADA ISLAND.

Special Report of W. M. Brewer, Traveling Corerspondent.

About ten months ago the writer gave a brief description of the mineral resources of Texada Island in the columns of the "Engineering and Mining Journal." The future prospects of the island did not at that time look at all bright; in fact he was skeptical regarding the outlook, especially of the northeastern portion, in which are located the properties owned by the Van Anda Copper and Gold Company. But since a second visit early in February of the present year, he recognizes that the camp has grown more rapidly and substantially than any other on the West Coast of British Columbia.

Texada Island is situated about 60 miles northerly from Vancouver in the Straits of Georgia, and about 18 miles from the east coast of Vancouver Island. Its length is about 35 miles, and average width about 6 miles. The northern end has been prospected fairly well, but of the southern end little is yet known as to the mineral resources. The timber and underbrush are so dense that any attempt to explore that portion of the island will be attained by the greatest difficulty. This fact will not deter many prospectors from visiting that section during the coming season, because the developments made by the Van Anda Company during the past year have resulted satisfactorily enough to inspire renewed confidence in the minds of prospectors who are accustomed to overcome such difficulties.

The camp or town of Van Anda is the direct result of the energy, judgment and pluck of Mr. H. W. Treat, the President and Manager of the company since March last. Before discussing the geological and economic features of the mining propositions which the writer has just examined in the vicinity of the camp, he desires to give a brief sketch of its growth and the smelting plant. On July 15th last the 50-ton water-jacket smelter was blown in, and has been in continuous blast ever since. Previous to this a good wharf and warehouse with tram tracks connecting with the smelter on one side, and the saw mill on the other had been constructed. The saw mill has an actual capacity of 12,000 ft. of lumber per day and is equipped with planing and shingle mills. There are about 60 well built frame houses on the town-site as compared with half a dozen log cabins at the time of the writer's last visit. A creditably edited newspaper, the "Coast Miner," with a well equipped printing office, has been established, and a church is under construction.

The smelter site is situated on the shore of Van Anda Bay, on a belt of crystalline limestone. In erecting the buildings every allowance was made for increasing the smelting capacity to 100 tons a day whenever the supply of ore demanded. The forshore is being built up with furnace slag and the dumpage facilities are ample for years to come. The smelter itself was built by the E. P. Allis Company of Milwaukee; its dimensions are 42 in. diameter of bosh, with 3½-in. tuyeres. The blast used is cold furnished by a Connersville blower (two of which were installed in the engine room) with 14-in. discharge. One only of these blowers is run, the other being in reserve. The motive power is furnished from a 40 H. P. high speed engine built by the Russell Company and 80 H. P. boiler built by Armstrong & Morrison of Vancouver, B. C. The pump used is a 4-in. discharge Janesville, Wis., steam pump.

Connected with the smelter is the sampling works with a capacity of 5 tons per hour run by a 20 H. P. vertical engine, and furnished with a Brunton sampler; Blake crusher, Cornish rolls 24 in. diameter, by E. P. Allis Company; and Gates sample grinder. Near the smelter is the assay office, with two furnaces, balance room, and analytical laboratory fully squipped with all modern conveniences. In another building is the carpenter's shop, blacksmith and machine shops, and store room.

At the rear of the smelter the ground has been cleared for roasting the ore, and this is connected with the smelter by tram tracks. Near by are the ore bins, coke yards, and just beyond these is the quarry in a limestone bluff from which the flux is obtained. A trestle between 600 and 700 ft. in length connects the smelter with the saw mill to facilitate the transportation of saw-mill slabs, which are used for fuel in the boiler room. The coke and ore shipped by water are unloaded at the wharf by means of a gin pull and horse power into shoots, from which they are dumped into tram cars on an inclined track and hoisted by steam hoist of 100-ton capacity per day to the level above the ore bins near the smelter. The coke used is obtained from Union on the east coast of Vancouver Island about 35 miles distant by water. Although this coke carries from 16 to 18 per cent. of ash, it is quite hard and makes good fuel. It is the same coke as was used at Trail and the Hall Mines smelter previous to the opening of the Crow's Nest Pass coalfields. The iron ore used is obtained from the Security, Raven or Puget Sound iron mines, the latter being situated on the west coast of Texada Island, and the two first named being mineral claims owned by the Van Anda Company, and situated a short distance from the smelter. The matte produced averages 55 per cent. copper.

The bulk of the ore which has been smelted comes from the Copper Queen and Cornell Mines of the Van Anda group, but a limited quantity has been furnished from the Marble Bay Mine adjoining the Copper Queen and owned by Christie & Palmer of Toronto; also from the Lenora Mine situated on Mount Sicker on Vancouver Island.

During the writer's recent visit he was permitted, through the courtesy of Mr. Treat, the manager, and Mr. Kiddle, the superintendent of the Van Anda Copper and Gold Company, to examine the underground workings of both the Copper Queen and Cornell mines. The company's property comprises besides the two mines mentioned, nearly 800 acres of Crown granted mineral land in one body, and adjacent to and including the town of Van Anda. As the Crown grants only carried the copper, and as most of the ore found on prospecting yielded gold and silver values, mineral claims were located and recorded by the company some years ago, in order to avoid any litigation which might arise through prospectors making discoveries of gold or silver bearing ore.

At the time of the writer's previous visit he made a casual survey of the geology of this portion of the island, but because of the limited development of the mines could not reach any very satisfactory conclusion as to the occurrence, permanency or origin of the ore deposits. Apparently the northern end of Texada Island is composed of much the same character of rocks as portions of the west coast of Vancouver Island, which are considered by Dr. Dawson, Dominion geologist, to belong to the Cretaceous period. There has certainly been much volcanic disturbance, and probably several eruptions, because dikes of felsite, diorite and quartz-syenite occur as intrusions in the limestone, which has been so much altered as to be perfectly crystalline. The lines of contact of the lime and felsite apparently follow a more or less regular trend about north 60° west and they can be followed on the surface where exposed without difficulty. The same rule appears to apply to the line of the contact between the limestone and quartz-syenite, but the dikes of diorite are usually of less extent, and are much more irregular with regard to their lines of strike, often trending nearly at right angles to the general trend of the country. Whether these diorite dikes have had any influence over the deposition of the ore bodies is a question yet to be solved, but up to the present time the development work has demonstrated that they apparently have not, except so far as to cut off ore bodies, whenever these dikes occur in close proximity. In fact it would appear as though these dikes had been thrown up as intrusions at a later period than the disturbances which had caused the occurrence of the felsite and quartz-syenite.

The ores occuring on the northeastern portion of the island are bornite, chalcopyrite and copper glance, carrying besides high values in copper, both gold and silver. The gold content averages about $9 per ton, but sometimes is very much higher and occasionally reaches $100 per ton. These ore bodies invariably occur at or close to the contact of the limestone and felsite, and usually form the filling of cavities of irregular extent, apparently caused by chemical action on the soluble limestone, but often the ore extends into the felsite, where it appears to derive its origin from replacement.

In both the Copper Queen and Cornell mines the ore bodies so far exposed in the workings are of considerable extent, especially as regards thickness. On the 400 ft. level of the former, an ore body recently opened in the west drift shows a thickness of 20 ft., with hanging wall not yet found. This body had been drifted on for 40 ft., and when the writer visited that level on February 10th last the breast of the drift was still in ore. On the 300 ft. level an ore shoot 22 ft. thick, at its thickest part, had been drifted on 75 ft., and on the 200 ft. level the thickness of the ore body had not been determined, although drifted on for 60 ft., because the foot-wall had not been exposed. The thickness of this body, so far as yet determined, is about 6 ft. Having been opened from the hanging-wall side, this ore body has more gangue associated with it than is the case on either of the other levels mentioned where the ore body was opened from the foot wall side.

The Copper Queen is the most extensively developed property so far as depth is concerned, in Western British Columbia. A vertical shaft has been sunk 418 ft., and levels opened at 100 ft., 174 ft., 200 ft., 300 ft., and 400 ft. depths respectively. Until within the last few months though, the work has not been carried on as systematically or as thoroughly as should have been done. On the first levels short drifts only were run, and the ore stoped out, the management apparently having been afraid to extend the drifts for fear of spoiling the showing of ore in the faces. But under the present management the drifts on each levels are being extended, and upraises are being made in order to show "ore in sight." On the 200 ft. level the wisdom of this policy has been fully exemplified, because in the west drift a narrow intrusion of diorite was encountered, which apparently cut off the ore, but on driving through the dike it was found the ore occurred undisturbed on the other side. This would go to prove the writer's theory that the diorite dikes have been thrown up as the result of eruptive action subsequent to the deposition of the ore bodies. This dike cuts the ore body at right angles to its line of strike.

There has been a total of 1,500 ft. of work performed on the Copper Queen, 1,000 ft. of which has been done since March, 1899. This work in detail is as follows: Vertical shaft, 418 ft.; drift toward west on 400 ft. level, 140 ft. in length, the last 40 ft. being in ore, with ore in the face; drift toward east on same level, 55 ft.; drift on third level, 110 ft. toward east and 110 ft. toward west of shaft; cross-cut toward north, 88 ft.; toward south, 81 ft.; in west drift, 75 ft. in ore with a maximum thickness of 22 ft., having a felsite foot wall, and lime hanging wall; drift on 200 ft. level, 35 ft. toward west, 30 ft. toward east, with ore in both drifts, and still continuing in the faces; upraise from the 200 ft. level to the 180 ft. level in ore. Upraise being made from the 400 ft. to the 300 ft. level; also from the 300 ft. to the 200 ft., the latter being in ore.

It is impossible from the present condition of the workings to measure up the ore in sight exactly, because until all the upraises are made of course there is room for reasonable doubt as to whether the ore body maintains continuity as one body, or whether there occur distinct bodies in cavities of irregular dimensions, but having the same line of strike and lying "en echelon." The ore body which has been opened on the 400 ft. level is apparently distinct from the other body or bodies.

The body of ore occurring on the 400 ft. level is bornite with charlcopyrite carrying besides itself copper values, an average of $9 per ton in gold. The gangue of this ore is hornblende and garnets. The crystallization of the entire body is most beautiful, as much of the hornblende occurs in the form of perfect actinolite crystals.

The development work on the Cornell Mine measures up in the aggregate 450 ft., which is all tunnelling except 90 ft. of shaft. The outcrop occurs about 220 ft. above the level of a fresh water lake, which is 73 ft. above high tide mark; the lowest level opened in the Cornell is 143 ft. above the lake; No. 1 tunnel is 173 ft. above the lake and No. 2 tunnel 203 ft. above the lake. The ore body in the lowest level is about 8 ft. thick, having its strike nearly east and west, and its dip on the upper levels vertical, and on the lowest level 80° toward the south. The surface ores from the Cornell Mine were chiefly carbonites, but on the lower levels the ore occurs as unaltered chalcopyrite.

The earlier work performed on the Cornell was not carried on as systematically as is being done at the present time, consequently the underground workings present an appearance of having been mined at haphazard rather than following the systematic policy of thorough exploitation which is being carried on by the present management. Owing to this fact, it has been necessary to perform more dead work in order to properly develop the property to show ore insight than should have been done had a more systematic exploitation have been adopted from the start.

The writer has referred to foot and hanging walls in this article, but in reality these walls are not as well defined as is the case in fissure veins, or in contact veins ordinarily. The fact of the ore bodies occurring in both mines as fillings of cavities of irregular dimensions, and often extending into the felsite dikes on one side as well as occupying cavities in the limestone on the other, renders cross-cutting beyond the limits of the ore in both directions necessary, in order to determine beyond doubt the limits of the ore bodies. There is one rule, though, which causes regularity even under these irregular conditions. This is that invariably the ore bodies are found at the contact between the felsite and the limestone, with the felsite in the Copper Queen on the foot-wall side, and the limestone on the hanging-wall side.

The diorite dikes where they occur with their lines of strike conformably with the line of strike of the ore body are usually found with ore on all sides. This has been demonstrated by actual work. But occasionally these dikes form one of the walls of the ore body, and invariably it has been found that the ore never extends into the diorite itself.

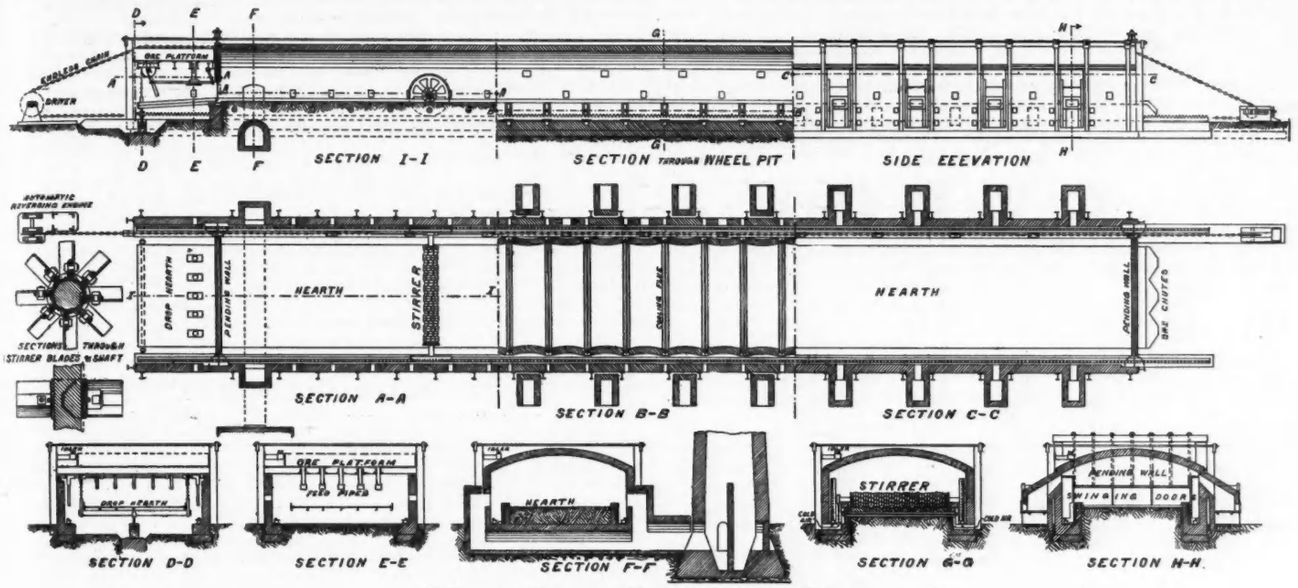
THE ZELLWEGER ROASTING KILN.

The roasting kiln shown in the accompanying drawings was designed and patented by John Zellweger, constructing engineer of St. Louis, Mo., and built by him for the Cherokee Lanyon Spelter Company at the new works at Gas City in the natural gas field east of Iola, Kansas, in the summer of 1899, for the purpose of roasting zinc ores brought from the mines in Missouri, Kansas and Colorado. The kiln at Gas City, however, is heated by natural gas and has no fire-boxes as shown in this plan. It has an effective hearth surface of 15 ft. by 135 ft. and an easy capacity of 15 tons of roasted ore per 24 hours. The sulphur is expelled regularly to less than 1 per cent. for an output of 30,000 lbs. per day or 0.5 per cent. for 25,000 lbs. and 1.5 per cent. for 35,000 lbs. output in 24 hours.

The new and main feature of this machine roaster is the rolling stirrer, which consists of a heavy shaft, supported at its ends by two fixed wheels and carrying a number of collars on which are mounted radially projecting blades of a smaller reach than the radius of the supporting wheels. These blades form a cylinder of blades of about 2 ft. diameter, which extends crossways over the hearth and nearly touches it. The wheels have a diameter of 6 ft. and roll on tracks in the bottom

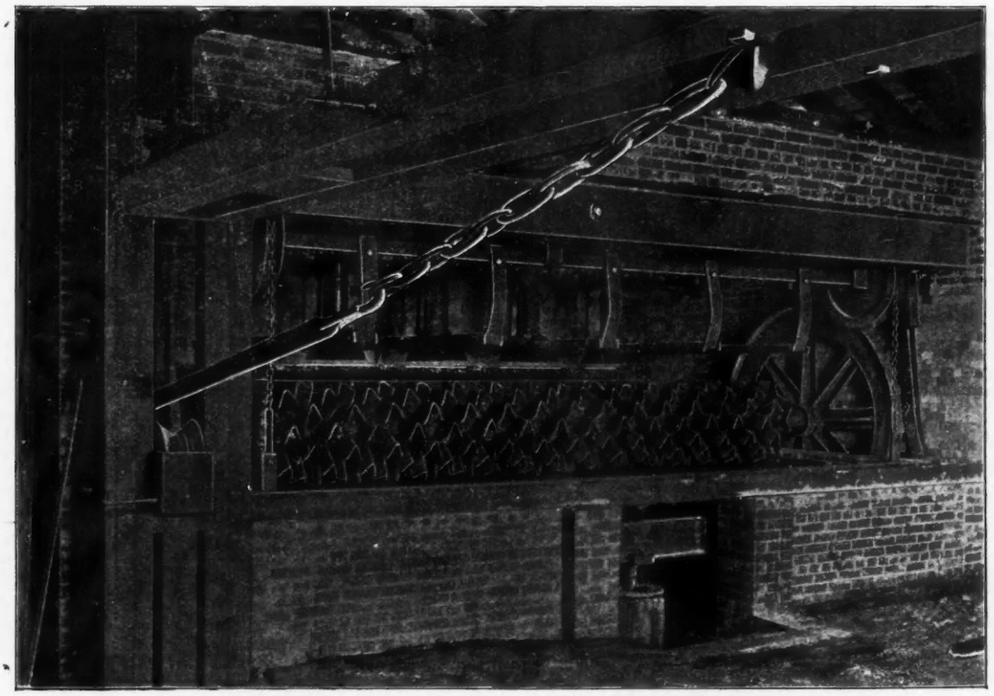
of wheel pits on each side of the hearth. When the stirrer rolls over the hearth the point of each blade, while moving in a cycloidal curve, in turn approaches to and then recedes from the hearth. The collars are mounted loosely on the shaft, but provided with a locking device, so that they can revolve around the shaft when the stirrer rolls in the direction toward the feed end of the kiln, but are locked to the shaft and cannot revolve around it when the stirrer rolls in the direction toward the discharge end. The stirrer blades are made of steel plates

The tracks in the wheel pits consist each of a line of rails or beams and a line of racks all bolted together. The teeth of the racks correspond and engage with pockets on the circumference of the stirrer wheels, thereby securing parallel motion of the stirrer. The stirrer is set in motion by means of an endless chain of which one half is supported by idlers in the bottom of one of the wheel pits and the other half by idlers on top of the kiln. The chain is attached to the stirrer by means of a collar which contains a ball-bearing and is mounted on the



ZELLWEGER ROASTING KILN AT GAS CITY, KANSAS.

formed concave in front and convex in rear, showing a V or U-shaped cross-section. During the forward trips of the stirrer over the hearth in the direction toward the discharge end, each blade, being fixed on the shaft by the locking device, digs into the body of ore and with its end scrapes along the hearth. In doing so the cavities in the front of the blades become filled with ore from the bottom and as the blades rise shaft near one of the wheels. The chain runs over sprocket wheels, located outside of each end of the kiln. One of the sprocket wheels is driven by an automatic reversing engine which pulls the stirrer forward and backward through the kiln, starting and stopping itself after each single trip. The stirrer passes through the kiln in 1½ minutes and then stops for 1½ to 3 minutes as desired. The kiln chamber is closed at



ZELLWEGER ROASTING KILN AT GAS CITY, KANSAS.

they drag this ore forward and upward and spread it over the top of the charge. This action produces a thorough stirring and mixing of the entire charge. During the return trip of the stirrer over the hearth toward the feed end the blades also dig into the body of the ore but since the collars are then free to revolve around the shaft, each set of them is caused to roll over the hearth like a wheel on its track, the blades in this case only displacing the ore laterally like a plow or rake. It is obvious that the stirrer on its forward trip carries much more ore forward than it moves backward during its return trip, and that this difference measures the rate at which the entire charge advances over the hearth toward the discharge end.

each end, partly by fixed pending walls and partly by swinging doors.

The roasting chamber of this kiln is high so as to give room for the large wheels of the stirrer and requires a mode of heating different from the customary practice. The kiln at Gas City is heated by natural gas, introduced under light pressure through ports in the side walls immediately under the arch. Producer gas or gases from solid fuel are similarly introduced as shown in plan. The gases escape at the feed end of the kiln through large ports in each wall in a downward course to the chimney. This kiln therefore is heated on the down-draft principle and the gases after entering the kiln through the fire ports first flow along the roof toward the center of the kiln where the currents from both

sides meet and then turn down toward the hearth, at the same time moving toward the rear end of the kiln to heat the incoming ore. The high roasting chamber, far from being objectionable, has the double advantage that there is room in the top part for a large body of burning gases which can heat the ore uniformly by radiation, and in the bottom part room for a large body of hot fresh air by which to oxidize the ore. There is no undue loss of heat by excessive draft and still ample ventilation for effective work.

At the rear end of the kiln is the ore feeding mechanism, by which ore in measured quantities is transferred from a large overhead ore-bin onto a moveable extension of the hearth. This platform ordinarily is dropped below the level of the hearth and as a consequence the ore on it is out of reach of the stirrer, but when the stirrer returns to the rear end this drop hearth is raised and kept to the level of the hearth until the stirrer has rolled over it at the beginning of the forward trip and carried along the raw ore previously fed on to the movable platform. At the front end of the kiln the roasted ore is discharged through chutes into cars or conveyors.

The two tracks and the chain are kept from becoming too hot by contact with cold air admitted from the outside by ventilating flues below the bottom of the wheel pits and distributed by longitudinal cooling flues, which are located, one inside of each track and one directly under the chain. The cooling air escapes into the wheel pits in numerous small jets along the top of these flues and rises to the level of the hearth and to the upper part of the kiln chamber as it becomes warm and hot. Another part of the incoming cold air passes through the cooling flues provided for the tie-rods of the hearth. The air admitted to the kiln for cooling purposes serves partly to oxidize the ore and partly to burn the sulphur and the fuel gas with which the kiln may be heated advantageously. In order to keep the stirrer from becoming too hot, it is allowed to stand still after each trip and to cool outside of the roasting chamber. Since the stirrer blades enter the hot ore only periodically with each revolution of the stirrer, they suffer but little from heat and corrosion, as experience has shown, the same is true of the large stirrer wheels because these are continually cooled by cold air entering the wheel pits.

The stirrer is heavy enough to prevent all caking and building up on the hearth and on account of its substantial construction is always ready for work.

ABSTRACTS OF OFFICIAL REPORTS.

Delaware, Lackawanna & Western Railroad Company.

This company's railroad is one of the large carriers of anthracite coal, and the company also owns a large coal estate and operate a number of collieries. For the year ending December 31st, 1899, the company issues for the first time a report giving some particulars of its operations. Heretofore its brief statement has given only the total receipts and payments, making no distinction between railroad and coal earnings. The change is a very acceptable one.

The total gross earnings of the railroad were $21,325,122, of which $9,407,796, or 44.1 per cent. were from transportation of coal. The working expenses were $12,571,210, leaving a balance of $8,753,912. The net earnings of the coal department were $904,173; interest and miscellaneous receipts, $577,180, making a total net of $10,235,466. Interest and rentals were $6,794,093; dividends (7 per cent.), $1,834,000; leaving a surplus of $1,607,173 for the year.

The total merchandise movement on the railroad was 5,877,154 tons moved, or 926,503,533 ton-miles, the average haul being 157 miles. The average rate per ton-mile was 0.679c.; the average train load, 302.8 tons. The coal traffic—almost entirely anthracite coal—compares as follows:

	1898.	1899.	Changes.	P. C.
Tons coal moved	6,643,302	6,731,353 I.	87,951	1.3
Coal ton-miles	932,074,585	994,815,755 I.	62,741,160	6.7
Average haul, miles	140.3	147.8 I.	7 5	5.1
Average rate per ton-mile, cents	1.662	0.946 D.	0.116	10.9

The earnings of the coal department of the company's operations are now for the first time reported separately from those of the railroad though they are not given in detail. The gross earnings were $21,315,799; expenses, $20,411,626; leaving a net balance of $904,173, which compares with a deficit of $1,726,093 in 1898.

New York & Honduras Rosario Mining Company, Honduras.

This company's statement for the year ending December 1st, 1899, shows receipts from bullion sold of $798,995; interest, $2,756; total, $801,751. The expenses were: General supplies, salt, dynamite, quicksilver, $129,836; freight and insurance, $22,462; expenses in Honduras, $309,704; general expenses, $13,696; total, $475,698. The net balance was $326,053, from which dividends amounting to $180,000—12 per cent.—were paid, leaving a surplus of $146,053 for the year. Adding $269,037 brought forward from 1898, made the total surplus $415,090, as of December 1st, 1899.

The superintendent reports the mine and auxiliary works in good condition. Many improvements were made, development work kept well ahead and the concessions from the Government consolidated and put in proper form. A settlement has been made with the local authorities of Cantaranas by which the company furnishes the town with water, and in all claims for damages from tailings and debris are abandoned.

President John J. Marvin says: "Our last year's progress has been the most encouraging in our history. While our old workings are still prominent in value, most of this year's work has been in the newly acquired adjoining territory, which property has been entered with energy, and is giving us a more comprehensive understanding of our mineral resources and their location than any ever before obtained, so that we hope for less groping in the dark and a securer sense of the courses to take in order to arrive at success. It is believed by some of the best judges that thus far we have only been following branches of the main ore deposits, and that, though abundantly rewarded already in past results, they are still insignificant in comparison with those yet to be reached; and that it is only reasonable to expect that in crossing the line of the ancient workings at a great distance below the shallow excavations hitherto made, our veins will be greatly enriched.

"Treatment of ore with a view to a greater extraction of its assay value in gold and silver has been improved during the past year by construction and extension of reconcentrating tables and riffled sluices. This year there have been 5,641½ ft. driven in underground workings at the mine, 16,638 tons of ore extracted, yielding 1,063,737 oz. silver and 8,163 oz. gold, leaving in sight at least one year's supply of ore. Steel T rails have been purchased sufficient to equip a railway in the lower 650 ft. level and elsewhere when needed, which will promote greater economy and efficiency of service and increase deliveries of ore to the mill.

"There have been regular monthly dividends declared during the year of 10c. per share, and an extra dividend of the same amount for December, while at the same time the surplus cash reserve has been considerably increased; the total aggregate of dividends thus far being $1,170,000."

Mount Morgan Gold Mining Company, Queensland.

The report of this company is for the half-year ending November 30th, 1899. During the six months 39,636 tons of ore were taken out from the underground workings; from the surface workings there were 79,022 tons of ore and 42,437 tons of overburden and waste; making in all 118,658 tons of ore and 42,437 tons of waste handled, a total of 161,095 tons handled. The new work included 355 ft. sinking and 1,792 ft. drifting. The mill reports show results as follows:

	Ore treated, tons.	Gold, oz.	Per ton, oz.
Oxidized ore	19,431	25,589	1.32
Low-grade oxidized ore	69,776	24,474	0.35
Mundic ore	29,451	37,406	1.27
Totals	118,658	87,469	0.74

The profit and loss account shows receipts on gold account, £347,160; interest, etc., £1,203; total, £348,363. Payments were: Mining and milling, including new machinery, £195,527; royalty and taxes, £12,896; dividends (20 per cent.), £175,000; total £383,423. This leaves a debit balance of £35,060, adding £6,282 brought forward from previous half-year, makes a total debit of £41,343. This debit is the result of the expenditure on new works for treating mundic ore, and will be paid off, it is expected, from earnings before long. The company has a reserve of £61,295.

The metallurgical engineer's report says: "The total amount of ore operated on during the six months was 118,658 tons, being 16,407 tons more than the average of the last two half-years; this increase being due almost entirely to the mundic works which have been in operation only during the period under review. The average grade of all ores treated was 14¾ dwt., or 59s. being 1½ dwt., or 6s. less than the average last year, and 113s. less than the average up to date. The decrease in the grades of different ores treated is not on account of the mine becoming poorer, but owing to it becoming necessary to operate on large bodies of ore that had been left in the mine previous to reform in the treatment, etc., being effected. The yield from the new mundic works averaged 9¾ dwt. per ton—calculated from the amounts of ore received and gold produced—but this average is much lower than the grade of ore treated there, as a large amount of gold is still in the ore undergoing treatment, and in the charcoal filters.

"No alteration of any note has been made to the west works except some repairs to the roof of the first section. Galvanized iron had been used for covering this portion of the plant, with the result that owing to the action of fumes in the works it has ceased to be weather-proof, and is now being replaced with shingles. The mundic works have been in operation during the whole of the half-year, but were not in full work during the first two months. The results are very much as expected. A second section of this works, which will double its capacity, was commenced several months ago, but was not pushed on until the last few months when sufficient experience had been gained with the first portion of the plant. No alteration or addition has been made to the upper works, except a new set of charcoal filters which have been completed and put in operation during this half-year. A new chamber has been added to the sulphuric acid plant during the half-year. This has been necessary in order to keep up with the increased consumption of acid due to the increase in the quality of ore being treated. The mundic ore being treated contains a small amount of copper, and as the amount in the ore increases with depth in the mine it is probable that some minor additions to the works will be made for the purpose of recovering it."

A NEW RESCUE APPARATUS FOR COAL MINES.—In a new breathing apparatus patented by the firm of O. Neupert, Vienna, says the London "Colliery Guardian," an india-rubber cloth receptacle, made in the form of a collar, closely surrounds the wearer's neck, serving as a breathing bag, and at the same time to hold a store of quicklime for absorbing carbonic acid and water vapor. Since a mask tightly enclosing the face is also employed, and oxygen can be breathed from an accompanying container, a man wearing these appliances can remain in a locality filled with irrespirable gases.

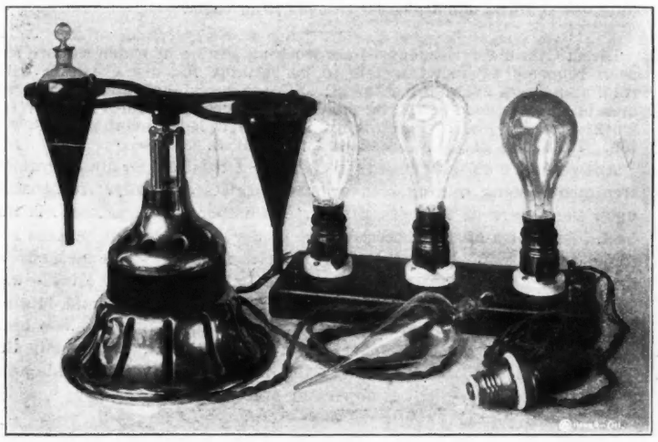
METEOROLOGICAL INVESTIGATIONS AT HIGH ALTITUDES.—The Prussian Meteorological Institute is about to arrange for the systematic examination of the atmosphere at high altitudes at the Aeronautical Observatory at Tegal, near Berlin. Kites and kite balloons will be employed at heights from 3,000 m. to 5,000 m. to ascertain the atmospheric conditions. The registering apparatus, which automatically notes the pressure, temperature, humidity and wind velocity at these heights, is taken up by a kite balloon connected with the earth by piano wire. It is inflated with hydrogen, and can take 1,500 m. of wire. Under favorable conditions a kite of the Hargreaves type is attached to the lower end, with a surface of three square meters, and this can lift 500 m. of wire. To it a second kite is attached, and to this latter a third, and so on, until the balloon reaches a height of 4,000 m. or more.

A CENTRIFUGAL MACHINE FOR PHOSPHORUS DETERMINATIONS.

The accompanying illustration shows a very convenient machine which has been devised and is now being introduced by E. H. Sargent & Company, of Chicago. This machine is exciting considerable interest among steel chemists owing to its great practical service in making the immediate determinations of phosphorus which are at times quies necessary. It effectually takes the place of large and cumbersome machines operated by steam power. Its practicability and durability have been thoroughly tested. Several of the machines have been in use for a number of years, although but just offered for sale to the general public, as those previously made were to special order. The illustration shows very clearly the construction and arrangement of the machine, which is designed for rotating Goetz' tubes, for the immediate precipitation of phosphorus, and is a great convenience when the approximate amount of phosphorus must be estimated in a very short space of time. The machine is furnished with a rheostat for regulating the speed and may be had either for the 110 or 200 volt Edison current or the 55 volt alternating current. The tubes are so graduated that with a 1.5 gram sample each small division (of which there are 20) represents 0.01 per cent. of phosphorus. Its usefulness will be fully appreciated by all chemists who use the Goetz method.

A PORTABLE STAMP MILL.

The accompanying illustration shows a small portable stamp mill intended for the use of prospectors and others who wish to test ores by working in a small and economical way, before undertaking the erection of larger and more expensive machinery. It is a very simple device, both



CENTRIFUGAL MACHINE FOR THE GOETZ PHOSPHORUS METHOD.

in construction and operation. It is made by John Taylor & Company, of San Francisco.

Fig. 1 is a general view of the mill. The mortar is preferably made circular in horizontal section, and is oval shaped in vertical section. It is 8 in. diameter inside; the shoe and die made of chilled iron are 4 in. in diameter. There is ample room for feeding ore and for splash. The hole through the top of the mortar serves as the lower bearing for the stamp rod, which rod, with tappet and shoe, weighs 45 lbs., and drops 6½ in. to 7 in. with a force of 750 lbs. The upper part of the mortar supports the two iron columns or pillar blocks for the cam shaft. One of these columns projects above the shaft, and the top of it serves as the upper bearing for the stamp rod. There is a screw at this place. By turning it the stamp rod is held fast while cleaning up the mill. The ore is fed through a large hole at the side of the mortar near the top. There is also a ½-in. pipe and stop cock to supply the mortar with water. The discharge at the front is square, 6 in. by 6 in., and the screen is fastened by wedges in the usual way. The mill is furnished with five sheet-iron slot punched screens, varying in discharge from that of a No. 20 to a No. 40 brass wire screen.

The mortar is divided longitudinally into two parts, the upper part being fastened to the lower by a hinge-pin and one hinge bolt. When the nut of the latter is loosened, the upper part of the mortar with all its belongings can be turned over to rest upon the ground as shown in Fig. 2. This arrangement serves two purposes: first, to give greater facility for rapid and effective cleaning up, and, second, by withdrawing the hinge-pin the upper half can be entirely removed, thus rendering it portable. A rubber gasket placed between the two parts of the mortar prevents leakage, when the bolt on the front side of the mortar is tightened.

The fly wheel upon the cam shaft is 18 in. in diameter, and takes a 1½ in. belt. The mill can be operated by hand or by power such as a small water wheel or a small gasoline engine.

The firm make sluice boxes of different lengths, which can be used in connection with this stamp. They also manufacture a small rock crusher which can be operated by hand or power attachment, this being a serviceable addition to the mill.

ACETYLENE AS AN EXPLOSIVE.—Notice is given in the "London Gazette" recently that after the expiration of 40 days it is proposed to submit to her Majesty in Council the draft of an order in council providing that acetylene, when in admixture with atmospheric air or with oxygen, shall be deemed to be an explosive within the meaning of the Explosives Act, 1875, and that it shall not be manufactured, imported, kept, conveyed or sold.

MINERAL COLLECTORS' AND PROSPECTORS' COLUMN.

(We shall be pleased to receive specimens of ores and minerals, and to describe and classify them, as far as possible. We shall be pleased to receive descriptions of minerals and correspondence relating to them. Photographs of unusual specimens, crystals, nuggets and the like will be reproduced whenever possible. Specimens should be of moderate size and should be sent prepaid; we cannot undertake to return them. If analyses are wanted we will turn specimens over to a competent assayer, should our correspondent instruct us to do so and send the necessary money.—Editor E. & M. J.)

55.—Endlichite.—This rare lead mineral, a mixture of arsenate and vanadate of lead in almost equal proportions, is one of the most showy of American minerals. It has an adamantine luster and varies in color from straw yellow to bright red or dark reddish brown. It occurs in rounded masses and in hexagonal prisms. The only important locality is at Hillsboro, near Lake Valley, N. M. Here the fine crystals are found in the loose clayey seams of a standstone.

56.—Native Metals for Paris Exposition.—Mr. Mercer of the Michigan School of Mines has completed his collection of native metals from the United States, and it has been shipped to Chicago, from where it will be transported to Paris. The collection includes copper, silver,

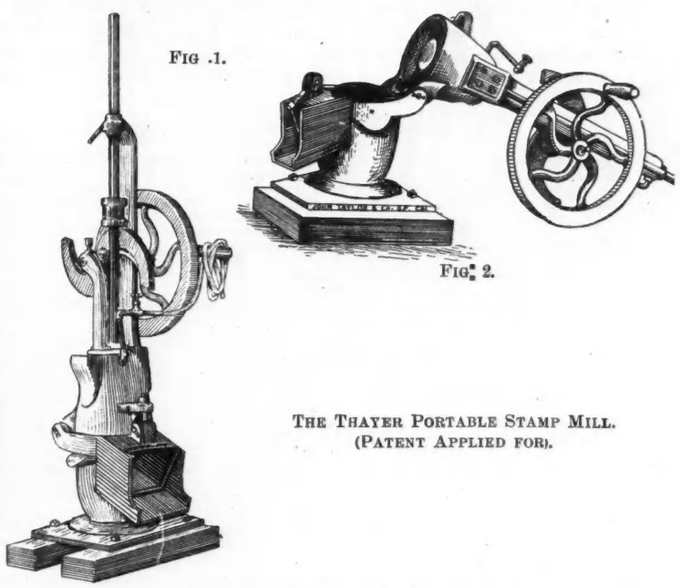


FIG. 1.

FIG. 2.

THE THAYER PORTABLE STAMP MILL.
(PATENT APPLIED FOR).

gold, sulphur, carbon, antimony, bismuth, tellurium, platinum and iridosmine, about 100 specimens in all, valued at from $360 to $375. The collection includes a specimen of gold-bearing quartz taken from a "pocket" in the Michigan Gold Mine near Ishpeming, Mich., that is 4 or 5 in. in diameter and contains about $15 worth of gold; this was loaned by Hon. Peter White of Marquette. Another specimen is native lead associated with native copper, from Franklin, N. J. There are specimens of crystallized gold, crystallized copper and crystallized silver and of the "half breeds"—copper and silver—which are frequently found in the copper mines of Michigan. The exhibit includes 2 or 3 pieces of meteoric iron, one weighing 50 lbs., from the meteoric fall in Canyon Diablo, Arizona, and there is a smaller one from the Sacramento Mountains of New Mexico. Both of these specimens are polished and one is etched, to show the Wiedmanstattian figures. There is also some josephinite from New Mexico. A beautiful specimen of branch copper, fern-like, on a natural pedestal of rock 4 in. square, comes from the Michigan Mine. A specimen of hematite iron ore, with native copper attached, came from Tower, Minn. In Ontonagon County, Mich., Mr. Mercer encountered a beautiful piece of crystallized silver. The back is composed of calcite crystals, while in the front are 4 rows of silver crystals, arranged similar to the feathers of an Indian's head dress. This is 3 or 4 in. in diameter and came from the Mass Mine. There are different modes of copper. Two or three pieces are crystallized after the form of cuprite, and after the form of azurite. There is crystallized gold from Colorado and California and platinum from California and Oregon.

59.. F. C. H.—Calcite.—The specimens you send are not, as you took them to be, celestite. You might easily have told that the mineral was a carbonate, by touching it with acid, as it effervesces readily. While the crystals show some rather unusual forms, yet the rhomoohedral cleavage, which in some of the specimens in the crystals, including some complex twins, show the mineral to be calcite. Its economic value is slight, though particularly fine crystals of unusual habit, find a ready market among mineral collectors.

60. W. P. E.—Tripoli.—The white silicious material you send is of good color, showing little trace of any impurities, and would probably be classified by dealers in abrasives as tripoli. When properly prepared for market by calcining, crushing and washing, such material might be worth $25 a ton in New York City, and the deposit, if extensive, would be of considerable value.

61. W. H. R.—Pyroxene.—The dark, almost black mineral with slender prismatic crystals, is apparently one of the pyroxene minerals, which are of common occurrence in basic eruptive rocks. The exact determination of the mineral involves more detailed work than we are prepared to give. It may be diallage.

63. Endlichite.—This snowy lead mineral shares with two other lead compounds, wulfenite and vanadanite, the distinction of being the finest American mineral. It is probably a compound of vanadate and arsenate of lead, with chloride of lead. It has a brilliant adamantine luster. The crystals are well defined, but occur in a number of types and show a wide range of color, from straw-yellow to brilliant red or to reddish-brown, a single crystal sometimes showing this gradation. The mineral occurs in rounded masses, as well as in hexagonal prisms, like mimette, or in hollow crystals, like vanadanite. The chief American locality is at Lake Valley, near Hillsboro, N. M., where it occurs sparingly in the seams of a sandstone, the crystals often lying loosely in a puffy clay formed from the decomposition of the original matrix.

QUESTIONS AND ANSWERS.

(Queries should relate to matters within our special province, such as mining, metallurgy, chemistry, geology, etc.; preference will be given to topics which seem to be of interest to others besides the inquirer. We cannot give professional advice, which should be obtained from a consulting expert. Nor can we give advice about mining companies or mining stock. Brief replies to questions will be welcomed from correspondents. While names will not be published, all inquirers must send their names and addresses. Preference will, of course, always be given to questions submitted by subscribers.—Editor E. & M. J.)

Uses of Bone-ash.—Is bone-ash used for any other purpose by smelters and refiners besides making cupels?—W. H. B.

Answer.—The only use of bone-ash besides making cupels is for the small quantity which is used in luting crucibles. The quantity used for cupels is considerable.

Tripoli.—Can you give me any information about tripoli? What is its value? What is it used for?—W. B.

Answer.—Tripoli is chiefly composed of silica; from 80 to 90 per cent. should be pure silica. Its chief use is as an abrasive. The tripoli mined in the United States at present comes chiefly from Newton County, Missouri, where some 1,900 tons were obtained last year. The present value in New York is about $20 a ton.

See "Engineering and Mining Journal," December 15th, 1899; also "The Mineral Industry," Volume VII.

Gasoline Motors for Boring.—Can you tell me if gasoline or petroleum motors have been used for boring purposes in connection with the American or Canadian system of well boring? Where fuel is dear and water for boilers bad, the economy is obvious if the oil be obtainable at a reasonable price? Should such have been used with success kindly name the makers of the engines.—G. B. R.

Answer.—Gasoline and petroleum engines are used in well boring with success. In fact some makers of well-boring machinery in this country furnish such engines in place of steam engines when desired. There is no reason whatever why a petroleum engine should not be used in connection with well-boring machinery. The case you mention seems to be one where such engines would be specially suited for the work. You will find a number of advertisements of makers of such engines in the advertising columns of the "Engineering and Mining Journal."

Length of Working Day.—What is the generally accepted meaning of the term "a 20-ton stamp or a 20-ton roller mill" in respect to the number of hours necessary to stamp or roll 20 tons of rock or ore? Does it mean it will stamp 20 tons in a day of 8, 10 or 12 hours, or does it mean running the full 24 hours? In making a contract for supplying the funds to put up a 20-ton rolling plant I want to know whether they could claim that a "20-ton stamp or roll" must stamp 20 tons in an ordinary working day of 8 or 10 hours, while I understand it to be the full 24 hours.—W. A. B.

Answer.—By general custom a working day in a stamp mill, crushing or concentrating plant is considered to be 24 hours, and the plant is rated accordingly. Any mill man or manufacturer of machinery, in speaking of a 20-ton plant, or a 200-ton plant, would understand that the 20 tons or 200 tons—or whatever the figure named might be—meant the quantity which could be put through in 24 hours.

Large Gas Engines.—Can you tell me what are the largest gas engines in operation in this country? I saw recently in the "Engineering and Mining Journal" a description of a gas engine at Seraing, in Belgium, capable of working up to over 600 H. P., which seems much larger than any in the United States.—J. P. A.

Answer.—There are quite a number of gas engines in operation in the United States over 100 H. P. The largest engines now at work are one rated at 650 H. P. at the works of the Westinghouse Machine Company, in Pittsburg, which has been in regular use for more than a year. One of the same capacity has recently been erected at the works of the Columbus Electric Company, in Columbus, Ohio, and still another of 650 H. P. will soon be at work for the Carnegie Steel Company. These engines all use natural gas. They will soon be exceeded in size, however, by an engine of 1,500 H. P., which is now being built by the Westinghouse Works. This engine will, when completed, be the largest gas engine in the world.

Testing Dynamite.—Can you inform us of a simple way of testing the percentage of nitro-glycerine, contained in an ordinary dynamite cartridge? In other words, we wish to avoid a chemical analysis if possible. We have tried the specific gravity test, and it does not seem to work. What we wish to obtain is a means by which we can determine the comparative value of different makes of dynamite.—T. H. A.

Answer.—The specific gravity test will not work in testing ordinary dynamite, owing to the different absorbents in use. About the simplest and safest way of testing the percentage of nitro-glycerine in an ordinary dynamite cartridge is to extract the nitro-glycerine in the dried and weighed sample with anhydrous ether, then allow the ether in the extract to evaporate spontaneously, and, if there is no other substance present soluble in ether, to weigh the reside as nitro-glycerine. This last weight divided by the weight of the sample gives the required percentage.

If any of our readers can give another simple method of testing dynamite, we shall be much pleased to hear from them.

Direct Cyanide Treatment.—I am working a mine in which the ore has been reported by metallurgists to be suitable for dry crushing with rolls and direct cyanide treatment. Why is there such mistrust among men of this method? Can you name a few successful mines in the West worked on this plan? The mine is in a quartz ledge averaging $13 per ton. Tellurides of gold and silver occur.—B. C.

Answer.—We do not think there is any mistrust of the direct cyanide treatment among mining men or metallurgists generally. It depends upon the nature of the ores, of course, whether such treatment is the best. Examples of the successful use of the direct cyanide process are found in the mines of the Mercur District in Utah. The methods of ore treatment in one of those mines—De La Mar's Mercur Mines—was very fully described and ilustrated in the "Engineering and Mining Journal," December 23d and 30th, 1899. Direct cyaniding has also been used successfully in the Black Hills in South Dakota. Practically the same method is to be adopted at the Republic Mine in Washington, where the necessary plant is now being erected.

Lead Poisoning in Mines.—Are cases of lead poisoning recorded from any mines besides those at Broken Hill in New South Wales? If so, what is the form in which the lead occurs, as galena or cerussite, or in any other form?—M. H. R.

Answer.—Cases of lead poisoning occur ocasionally in mines in the United States; they are generally to be traced to the carelessness and uncleanly habits of the men employed. The matter is well summed up by Mr. C. Le Neve Foster—in his "Ore and Stone Mining," page 637—as follows: "In an ordinary lead mine, where the ore consists entirely or almost entirely of galena, plumbism is rarely heard of; but when the ore is cerussite, a different state of things arises and the disease may be rife. It is well known that the artificial carbonate, the white lead of commerce, produces poisoning among painters, so much so indeed that one of the ailments due to lead is known as painter's colic; it cannot, therefore, surprise us, when mere handling is injurious, that breathing a lead-laden atmosphere should likewise be pernicious. . . .

"The precautions to be adopted against plumbism at mines of this description are ample ventilation, laying the dust as far as possible by a spray of water, and the strictest cleanliness. The mill owner should do his share by giving the men every possible convenience for washing themselves and changing their working clothes, but no amount of forethought on his part will suffice to prevent the evil entirely, if the men fail to avoid every chance of defiling their food or tobacco by lead ore."

PATENTS RELATING TO MINING AND METALLURGY.

UNITED STATES.

The following is a list of the patents relating to mining and metallurgy and kindred subjects issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

Week Ending February 13th, 1900.

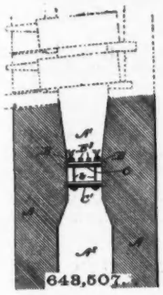
643,112. MINER'S LAMP. William A. Dunlap, Pittsburg, Pa. A miner's lamp in combination with a disk or shield having an opening for the reception of the spout and provided with oppositely-projecting bearing-pieces or flanges, and a brace secured to the lamp and the disk.

643,135. AIR-COMPRESSOR. William D. Hooker, St. Louis, Mo. The combination with a series of compression-cylinders of an outer surrounding shell for containing a cooling medium having a dividing-partition separating the shell into chambers, each containing a cylinder.

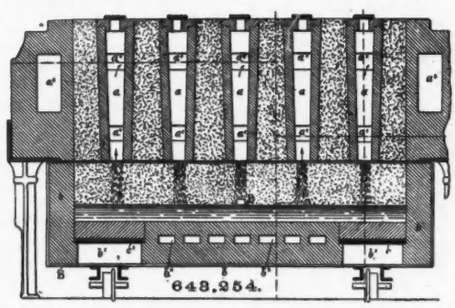
643,150. PUMPING MECHANISM. George W. McGill, Kearney, Neb. The combination of a cylinder, horizontal partitions subdividing the ends of the cylinder into non-communicating inlet and discharge chambers, said partition being disposed at different relative elevations and having vertical openings, the inlet-chambers having supply-ports, a passage connecting the discharge-chambers at opposite ends of the cylinder, a distributing-pipe in communication with one of said discharge-chambers, and inlet and outlet valves located upon opposite sides of the horizontal partitions in about the same horizontal plane and controlling the vertical openings formed in the respective positions.

643,233. GOLD-WASHING MACHINE. Frank C. Pinnell, Lodge, Cal. A riffle consisting of a base-plate, traverses strips secured thereto, sheet-metal caps secured to the strips, forming pockets, longitudinal rails secured to the traverse strips, a screen supported by said rails, and U-shaped clamps each having one end provided with a cam-lever, said levers operating against the bottom of the riffle-box, drawing the opposite end downward against the screen.

643,254. ELECTRIC FURNACE. Albert J. Petersson, Notre Dame de Briancon, France, assignor to the Societe des Carbures Metalliques, Paris, France. In an electric furnace, a chamber for the reception



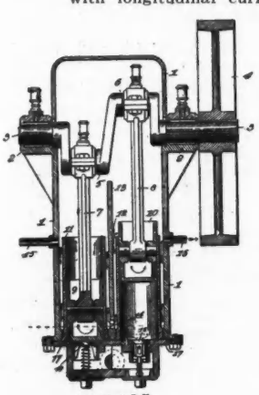
643,507.



643,254.

of the material to be reduced, an oven arranged below said chamber and having a flat hearth adapted to receive the reduced material, and two electrodes arranged in and having their upper surfaces level with the hearth of said oven, the upper flat surfaces of said electrodes adapted to be covered by and in contact with the reduced material and out of contact with the unreduced material, all arranged so that the reduced material on and between the electrodes is heated by the resistance it opposes to the passage of the current between the electrodes, the circuit of which is completed by said reduced material and the unreduced material is heated by contact solely with the heated reduced material.

643,278. APPARATUS FOR HARDENING METALS. Charles W. Sponsel, Hartford, Conn., assignor of one-half to William A. Lorenz, same place. In combination with means for forcing a supply of liquid, a distributing-head connected with the liquid-forcing means, a series of current-emitting chambers connected with the head, provided with longitudinal current-emitting outlets, and having intervals



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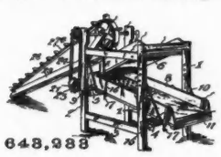

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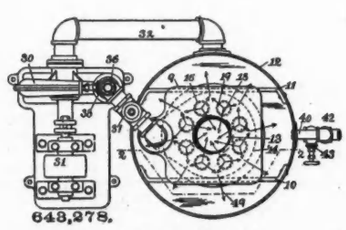


643,278.

between the chambers for the exit of the liquid, with means for closing the ends of the space encompassed by the chambers, so as to deflect the discharging liquid to the intervals between the chambers.

643,280. SALICYLATES OF THE YTTRIUM GROUP. Albert Weller, Frankfort-on-the-Main, Germany, assignor to Vereinigte Chininfabriken Zimmer & Co., Gesellschaft mit Beschrankter Haftung, same place. The antiseptic power consisting of a salicylate of a metal of the yttrium group, substantially as described.

643,281. PIT OR MINING LAMP. Richard C. West, Rostraver, Pa. A miner's lamp provided with a protector which consists of a strip of spring metal secured to the bottom of the lamp passed around the rim at the front thereof and secured to the lower portion of the spout.

643,301. PROCESS OF SMELTING AURIFEROUS ANTIMONY ORES. Cecil C. Longridge, Leigh, and George T. Holloway, London, England. A process for the extraction of gold from antimony sulphide ores consisting of the fusion of metallic antimony with ore and in the addition of sufficient metallic iron to the fused ore to convert enough antimony sulphide to metallic antimony to make good the loss of metallic antimony due to the solvent action of the sulphide ore and in the intimate admixture of the metallic antimony and sulphide of antimony by mechanical means, so as to effect the extraction of the gold by virtue of the greater affinity of the metallic antimony than the antimony sulphide for gold and by the greater density of the antimony gold alloy produced.

643,306. CARBURETER. Valentine J. A. Rey, San Francisco, Cal. In gas-generating apparatus, a carbureting-chamber, a spraying device therein for the introduction of hydrocarbon fluid, a valved air-inlet way at the top, filtering material at the base, a perforated bottom below said filtering material, an inclosure outside said perforated bottom, and means for drawing off the aerated vapor from said inclosure.

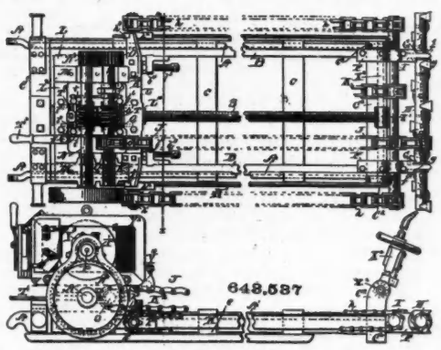
643,459. TUBING. Frederick F. Bischoff, Chicago, Ill., assignor to Robert K. Hill, Louise Statler, and Anna Maier, same place. A tube formed of a bent strip of sheet metal having lugs on its meeting edges, and a reinforcing-strip extending along the line of junction of said edges, said lugs being passed through slots in said reinforcing-strip, and clenched.

643,488. DAM, RETAINING WALL, BREAKWATER, ETC. John S. Fielding, Pittsburg, Pa. An improvement in the construction of dams, retaining-walls and other like structures, comprising vertical longitudinal cement walls, transverse cement walls uniting the longitudinal walls, and a top wall.

643,507. GRATE FOR ZINC-FURNACES. John D. James, Pulaski, Va. A grate having a portion of its bars formed of hollow water-pipes and provided with perforations on their upper sides discharging upwardly into the firebox, and valves regulating the flow of water into and discharge from said pipe.

643,534. LOCKING-HOOK FOR MINERS' BUCKETS. Edward J. Richmond, Carthage, Mo., assignor to Dwight J. Bliss, same place. In a safety bail-hook, a swiveled socket formed with diverging arms, a latch fulcrumed in one arm and having its free end adapted to engage the opposite arm to lock it with reference to the latch-arm.

643,537. MINING-MACHINE. Cyrus Robinson, Columbus, Ohio. The combination of a stationary bed, the carriage mounted on the bed, the motor mounted on the carriage, the cutting apparatus on the carriage, a carriage-moving mechanism having two intermittenly-



643,587.

rotary members, one mounted in bearings on and moving with the carriage and the other mounted in bearings on the bed, and means actuated by the motor simultaneously with the cutting apparatus and mounted on the carriage for driving either of said rotary members of the carriage-moving mechanism.

643,578. PROCESS OF PURIFYING SLUDGE ACIDS. Wilson Waring, Sewaren, and John E. Breckenridge, Woodbridge, N. J. The process of purifying sludge acids which have been used in the treatment of mineral oils, consisting of mixing with such acids, at low temperature, nitrate of soda in quantity only sufficient to purify the acid.

643,584. WIRE-DRAWING MACHINE. Chauncey C. Baldwin, Elizabeth, N. J. A continuous wire-drawing machine having drawing-roll spindles arranged in two tiers and provided with belt-pulleys, a driving-pulley adjacent to one end of the machine, and an endless belt looped over such driving-pulley and having one side of the loop extended back and forth over all of the spindle-pulleys to drive the two tiers of spindles in opposite directions.

643,602. HYDROCARBON-BURNER. Jonathan Johnston, Morgan Park, Ill., assignor to Sarah Johnston, same place. A hydrocarbon-burner having in combination a retort, a plug removably screwed in the end of said retort and a core consisting of a plurality of wire-like strands secured to said plug and extending into said retort.

GREAT BRITAIN.

The following is a list of patents published by the British Patent Office on subjects connected with mining and metallurgy.

Week Ending January 13th, 1900.

19,876 of 1898. ELECTROLYTIC TREATMENT OF ZINC. O. J. Steinhart, J. F. L. Vogel and H. G. Fry, London. Dissolving zinc oxide in a bath of fused zinc chloride and electrolysing the fused mass with such a current that the zinc is deposited from the oxide while the chloride remains undecomposed.

19,878 of 1898. ZINC CHLORIDE MAKING. O. J. Steinhart, J. F. L. Vogel and H. G. Fry, London. The manufacture of anhydrous zinc chloride and the prevention of its hygroscopic qualities.

1,223 of 1899. MINE GATE. N. K. Brown, North Lawrence, Ohio, U. S. A. Improved arrangements for mine gates.

2,712 of 1899. ZINC-LEAD SULPHIDE TREATMENT. W. R. Hutton, Glasgow. Saturating zinc-lead sulphides with nitrate of soda before smelting, in order to convert the zinc into soluble sulphate.

5,225 of 1899. ALUMINUM MAGNESIUM ALLOY. L. Mach, Jena, Germany. An aluminum magnesium alloy containing varying properties of antimony in order to increase the hardness.

Week Ending January 20th, 1900.

27,197 of 1898. COAL OR ORE WASHER. J. H. Darby, Wrexham. Method of separating ores and washing coal by passing them into a horizontally revolving current of water.

495 of 1899. MORTAR BOX FOR STAMP MILLS. C. S. Madan, Manchester. An inlet for ore to mortar boxes of stamp mills that delivers the ore lower down and distributes it more evenly round the die.

496 of 1899. STAMP STEM PACKING. C. S. Madan, Manchester. An improved packed gland for the stems of stamps as they pass into the mortar boxes.

2,076 of 1899. LOCK FOR MINERS' LAMPS. L. Beckman and A. Singowitz, Schalke, Germany. An improved locking device for safety lamps.

4,732 and 4,833 of 1899. ROCK DRILL. The Rand Drill Company, New York. Detailed improvements in the method of operating Rand drills.

23,014 of 1899. SMELTING LEAD SULPHIDES. A Germot, Paris, France. Improvement in the inventors' method of smelting lead sulphides for the purpose of recovering the fumes of the sulphide without contact with air.

24,135 of 1899. ZINC SULPHIDE TREATMENT. J. Gitsham, Richmond, Victoria. Extraction of zinc from sulphides by adding 1 per cent of metallic zinc to the collected oxide, leaching with water, and then with sulphuric acid, neutralising, and precipitating.

Week Ending January 27th, 1900.

25,742 of 1899. SMELTING FURNACE. A. Piat, Paris, France. A melting furnace, designed for rapidly melting metals and ores.

4,234 of 1899. SULPHIDE ORE TREATMENT. J. Armstrong, London. Reducing sulphide ores by means of nascent metallic sodium produced in the furnace itself by a mixture of carbonate of soda and carbon.

4,972 of 1899. AMALGAMATOR. A. Bargigli, Paris, France. An amalgamating apparatus for all the gold, float gold included, from ores, by passing the pulp through instead of over mercury.

5,858 of 1899. FURNACE LINING. A. Parretti, Marseilles, France. A refractory lining for metallurgical furnaces consisting of silicate of magnesia, mica, graphite, talc and asbestos.

16,161 of 1899. FURNACE FOR SULPHIDE ORES. J. Armstrong, London. Improved form of reverberatory furnace for the inventors' process for treating zinc-lead sulphide ores.

PERSONAL.

Prof. J. D. Young of Chicago has been busy with a number of expert examinations lately.

Mr. Vernon C. Reed, mine owner of Cripple Creek, Colo., is at the Waldorf-Astoria, New York City.

Mr. Forbes Rickard, of Central City, Colo., is examining mining property near San Luis, Potosi, Mexico.

Mr. R. H. Terhune is at Golconda, Nev., engaged in professional work for the Glasgow & Western Exploration Company.

Mr. E. H. Webster is assayer for the Colorado-Creston Mining Company, Minas Prietas, Mex., vice Mr. G. N. Powell, resigned.

Mr. A. F. Wuensch, mining engineer of Denver, Colo., is examining mining property in Sonora, Mex., for New York parties.

Mr. W. C. Turner is now superintendent of the Hazel Dell Mine, Carters, Cal., succeeding Mr. A. Campbell, who has gone to Mexico.

Mr. J. Grafton, an engineer employed in the engineering department of the Pennsylvania Lines, is in San Francisco on a pleasure trip.

Mr. Theo. Gross of Chicago, has returned to that city from Europe. He succeeded in interesting English capital in a large American gold property.

Mr. D. C. Peacock has resigned his position as engineer with the Commonwealth Iron Company at Commonwealth, Wis., to accept the position of mining engineer of the Champion Mine at Champion, Mich.

Mr. K. E. Voorhees has resigned his position in the mechanical engineering department of the New York Shipbuilding Company to acept a position with the Sharon Steel Company at Sharon, Pa.

Mr. J. E. Bamberger returned to Salt Lake City recently from an Eastern visit of several weeks. He reports an improved condition existing in Boston, New York and Cincinnati in regard to Western mines.

Mr. Hartwig A. Cohen, of Salt Lake, is in California for the purpose of perfecting arrangements for the erection of a smelter for Capt. J. R. De La Mar on the Bully Hill group of copper mines in Shasta County.

Mr. Julius F. Stone, secretary-treasurer of the Sunday Creek Coal Company, has tendered his resignation, to take effect June 1st. Vice-Presi- George W. Bright will act as president and vice-president of the company.

Mr. Newton A. Dunyon, formerly superintendent of the Centennial Eureka Mine, is in charge of mining operations for the Vulcan Copper Mining and Smelting Company of Sodaville, Nev. Mr. W. E. Terhune is no longer connected with the company.

Mr. Auguste Mathez, mining engineer of Denver, Colo., and Mr. W. B. Field, late superintendent of some large mines in Mexico, left a few days ago by way of Vancouver, B. C., for Pekin, China, to investigate mining propositions for a New York syndicate in which Mr. Samuel Newhouse is interested.

Mr. John Harnan, of the Portland Gold Mining Company, of Colorado Springs, Colo., has been appointed general manager of the Colorado & Deadwood Mining Company, which is working the Ironside Mine, on Squaw Creek. Mr. Harnan takes the place of Mr. Frank A. Waters, also of Colorado Springs.

Mr. J. G. Mather, formerly superintendent of the North Bloomfield Mine of California, who reported upon the placer mines of the Premier-Cariboo Gold Mining Company of New York City, has been engaged by that company to operate its mines, and is on his way to the company's grounds on Peters Creek in the heart of the Cariboo District, B. C.

Mr. Edward R. Holden's resignation as vice-president of the Delaware, Lackawanna & Western Railroad was accepted at a meeting of the managers of the road on February 23d, but no successor was chosen. Mr. G. A. Holden, son of the retiring vice-president, who is general sales agent of the road, will perform the duties of vice-president for the present.

Governor Roosevelt has appointed the following gentlemen to represent the State of New York at the International Mining Congress to be held at Milwaukee, Wis., June 19th: Henry H. Rogers, Wm. Rockefeller, D. Willis James, Thomas J. Hurley, Rossiter W. Raymond, Edward J. Berwind, Isaac Guggenheim, Adolph Lewisohn, John W. Postgate, J. B. Haggin, James D. Hague.

Mr. James Gilbert and Mr. Frank Owen have opened offices as consulting mining engineers at 2 Union Court, Old Broad Street, London, E. C., England, under the style of Gilbert & Owen. Mr. Gilbert and Mr. Owen have had experience in metalliferous mining in the United States, South Africa, Australia, South America, and elsewhere. They propose to devote special attention to mining engineering work in Spanish America, where they have already spent a number of years.

OBITUARY.

Lycurgus T. Laflin of Chicago, a member of the Laflin-Rand Powder Company and a well-known manufacturer of explosives, died on February 18th at Old Point Comfort, Va. He was a widower and was 65 years old.

Joseph G. Ray, a woolen manufacturer, of Franklin, Mass., died February 24th at his home of heart failure. He was about 70 years of age. He was a director of the Boston & Montana Company, the Old Dominion and other Boston-owned copper mines, and he was recently elected a director of the Shawmut Oil Company.

Edward Probert, formerly well known as a mine operator and superintendent in California and Nevada, shot himself in the head at his residence in San Francisco on February 22d, and died a few hours later. He was 76 years old and retired from active business 5 years ago with a moderate fortune; since that time he had lived in a house which he built for himself. He had a stroke of paralysis about a year ago which affected his brain to some extent. He was born in England and graduated from the University of Cambridge, but little is known about his early life. He went to California about 1875, and at once engaged in mining. He was connected with several mines in California, was on the Comstock for a time, and was for several years at Eureka, Nevada. He had charge for a long time of the Richmond Consolidated Mine in Navada, and the sale of that property in London was completed through his efforts. He was frequently employed as consulting engineer, and he examined and reported on many mining properties, chiefly for English clients. After his retirement from business he lived a secluded life, and had few friends.

SOCIETIES AND TECHNICAL SCHOOLS.

University of Illinois.—The laboratory of Applied Mechanics has recently installed an Olsen torsion testing machine of 230,000 lbs. in. capacity. It will test a shaft 2½ in. in diameter and 16 ft. long. Arrangements are being perfected to investigate the strength of cold rolled and forged steel shafting and cast iron and hollow shafting.

Engineers' Society of Western Pennsylvania.—At the regular meeting of the society at Pittsburg, Pa., on February 20th, resolutions were passed requesting the Congressmen of the district to exert their influence in favor of establishing a bureau for standardizing instruments and materials, similar to those established in foreign countries; also to exert their influence in securing the use of the whole of the Patent Office building for the use of the Patent Office, and the revenue of the Patent Office for Patent Office purposes. The paper of the evening read by Mr. Willis Whited was on "Reactions in Swinging Bridge Trusses," and took up the question of the different results obtained with various types of trusses by using different methods of calculation. The Finance Committee reported that progress had been made toward securing a permanent home for the Society, and that the money would probably be raised by the formation of a joint stock company, the stock of which the members of the society will be asked to subscribe for.

Engineers' Club of Philadelphia.—At the meeting on February 17th, 31 members and visitors were present. Mr. Fred. W. Gordon was elected to active membership, Messrs. Robert G. Griswold and Melbourne E. Davis to junior membership, and Mr. Somervell Solomon to associate membership.

On account of the small attendance the paper by William S. Vaux, Jr., on "The Canadian Pacific Railway from Laggan to Revelstoke, British Columbia," was postponed to the meeting of March 3d.

Dr. Henry Leffmann described the re-survey of a boundary line in which occurred a tree upon whose trunk the initials of the original surveyor had been cut 20 years before. These were clearly discernible upon the bark, and when it was attempted to cut out the surrounding portion with an axe, a section of the trunk fell out containing 20 rings of growth, and showing the letters plainly marked on the inner surface of the trunk. Similar instances were cited by Messrs. E. M. Nichols and L. Y. Schermerhorn.

American Society of Civil Engineers.—Regarding the coming convention in London, the secretary has received a letter from the secretary of the Institution of Civil Engineers, which states: "I am instructed to inform you that the President and Council have now fixed the Annual Conversazione of this Institution for Thursday, the 5th July, when they will desire to extend a very cordial invitation to those members of your society who may be in London then, as well as to the ladies of their families, to attend that entertainment. This conversazione, which leads to perhaps the largest annual gathering of engineers from all parts of the country, is, on this particular occasion, to be held, by the kind permission of the corporation of the city of London, in the rooms of their ancient Guildhall; and the President and Council desire to take this early opportunity of expressing a hope that they may, in due course, receive the names of any members of your society, whether traveling in an organized party or individually, to whom official invitations may be issued to attend that function." Those members of the American Society who intend going to England are requested to notify the secretary of the society as soon as possible.

Engineers' Club of St. Louis.—At the meeting on February 21st Mr. James Adkins, Jr., was elected a member.

The subject of the evening was presented by Mr. Albert Borden. It was a "Discussion of Some Unusual Constructions in Structural Engineering." Mr. Borden gave a number of demonstrations on the blackboard, of certain problems. Among these were the erection of a wooden tower, showing how simply it could be constructed, provided the corner blocks were made in a definite manner, and all side bracings were laid off at an angle of 45 degrees. A novel manner of arranging a footing for iron columns, which were inserted into an old buildings, whose front was altered, was also described and demonstrated. An interesting problem of a unique character was presented in the shape of a cylinder 30 ft. in diameter and 100 ft. long, intended to be revolved by suitable gearing and motive power. It was designed in quadrants of a circle and a spiral track on the inside served to carry cars longitudinally when the cylinder was revolved. A number of interesting problems arose in calculating the stresses of the members in this iron construction. The discussion of the various problems was participated in by Messrs. Ockerson, Maltby, Van Ornum, Hazzard and Boyd.

INDUSTRIAL NOTES.

The Gates Iron Works of Chicago, Ill., have closed a contract for a stone crusher weighing 75 tons, with a capacity of 1,000 yds. per day, to be erected at Rockland Lake, N. Y.

Suit was filed at Pittsburg February 26th, asking for a receiver for the American Plate Glass Company. The suit is brought on behalf of the De Pauw heirs, who own $20,000 of stock in the Glass Trust.

The Pressed Steel Car Company of Pittsburg, Pa., has shipped 185 complete freight cars for Alexandria, Egypt, by the steamer Kara from Brooklyn, N. Y. They will be placed on the railroad extending from Cairo to Khartoum.

The Austin Separator Company of Detroit, Mich., manufacturer of the Austin steam and oil separators, has shipped seven 7-in. horizontal receiver machines for the power plant of the London & Bristol Tramway Company, London, Eng.

The Seaboard Steel Company has been formed with a capital stock of $500,000. W. C. Sproul is to be president and Mirabeau Sims superintendent. Steel castings are to be made. There will be 2 open hearth furnaces and a foundry and chipping shop 550 ft. long.

The Mine and Smelter Supply Company of Denver, Colo., shipped 20 Wilfley concentrating tables to the Anaconda Copper Mining Company, Anaconda, Mont., and three 15-ton chlorination barrels with equipment for the National Gold Extraction Company, Florence, Colo.

The George V. Cresson Company of Philadelphia, Pa., will ship this month a large shafting outfit for Mexico, rock breakers and crushing rolls for a number of cement plants throughout Pennsylvania, and similar machinery for mining plants located in Virginia, Ohio and New Jersey.

The Jenks Machine Company of Sherbrooke, P. Q., recently supplied the Pathfinder Mine at Grand Forks, B. C., with an 80 H. P. boiler, an 8-drill compressor, 2 drills, a 20 H. P. hoist, and a pump with attachments; also the McRae Company in Deadwood camp with a 40 H. P. boiler, 2 drills, 1 hoist, pump, etc.

The Russian American Export and Import Company has recently been formed at New York City to develop export and import trade with Russia and countries in the Far East. Machinery, tools, railway supplies and manufactured iron and steel will be the principal lines which the concern will export.

A steel frame trestle, tipple and 2 tipple houses covered with corrugated iron are being erected for the Rose & Morgan Coal Company,

at Bellaire, O., by Wm. B. Scaife & Sons, of Pittsburg, Pa. The latter firm recently constructed a large steel frame trestle and tipple for the Raton Coal and Coke Company, Raton, N. M.

The American Machinery and Trading Company has established a main office in the Bowling Green Building, New York City, with branch offices in the largest cities in the United States and in all foreign countries, and traveling salesmen and correspondents throughout the world. The firm solicits agencies and special prices from manufacturers of all kinds of machinery.

The Denver branch of the Jeanesville Iron Works of Jeanesville, Pa., reports recent sales as follows: 2 steam station pumps to a coal company; also 2 electric power station pumps to another coal company. One high lift station pump to Leadville; 2 No. 7 sinkers to local dealers. The factory received order from No. 8 Lead Mine for a large compound pump, long stroke.

The Arthur Fritsch Foundry Company of St. Louis, Mo., has a number of contracts for mining machinery for the Missouri-Kansas lead and zinc district under construction, including rolls, crushers and several of the improved Fritsch jigs. The company has added to its staff Mr. A. W. Henry, who will have charge of the foundry department. Mr. Henry was formerly with the American Steel Foundry Company.

The Milwaukee Steel Casting Company's plant, Milwaukee, Wis., now covers a ground space of 150 by 250 ft., and has a capacity of from 12 to 15 tons of light and heavy castings, ranging from 1 oz. to 8 tons. The company controls the Tropenas process for making steel castings for Wisconsin, and has 2 Tropenas converters in its plant. It makes a specialty of magnetic steel and tool steel, and has a considerable business in manufacturing steel castings for dynamos.

The Morgan Engineering Company, of Alliance, O., recently incorporated at Columbus, with a capital stock of $3,000,000, half of which is preferred and half common. The preferred stock is to bear 6% interest, and the common is to take the remainder up to 6%, after which both are to share alike. The company will deal in hydraulic, electric, pneumatic, gas and power machinery, including guns and other ordnance supplies. The incorporators are William Henry Morgan, William H. Ramsay, Mrs. Marrie M. Ramsey, Nanette Sharer Morgan, of Alliance, and E. N. Huggins, of Columbus.

The dock which the Baltimore & Ohio Railroad is to construct at Curtis Bay will be 800 ft. long and 70 ft. wide and will afford facilities for loading 8 large vessels at one time. The dock will be equipped with a continuous string of unloading chutes, so that a vessel need not be moved, regardless of the position of its hatches. Three automatic track scales of 100,000 lbs. capacity, each with 65 ft. platforms, have been provided. The approach to the dock will be 1,200 ft. long, and along it are being erected storage bins to hold 36,000 tons of coal. The company has also placed orders for locomotives, and the Pressed Steel Car Company is now turning out 3,000 steel coal hoppers.

The silica brick plant of the W. H. Haws Fire Brick Company, at Mt. Union, Pa., began the manufacture of silica brick February 1st. The company consists of Scott Dibert, president; T. C. du Pont, vice-president; John H. Waters, secretary and treasurer, and W. H. Haws, general manager, all of Johnstown, Pa. The works form one of the most complete silica brick plants in the United States. The ganister or silica rock is taken from the mountain above, is loaded on cars holding 2 tons each, and let down by gravity, the loaded car bringing the empty one up. The incline is 1,750 ft. long. When the loaded car reaches the bottom it is automatically dumped into a No. 5 Champion crusher.

There are 4 grinding pans, built by Phillips & McLaren, Pittsburg, Pa., driven by a 225 H.-P. engine, built by Farquhar & Company, of York, Pa. The pan room is 40 by 90 ft.; the molding and drying floors are 200 by 140 ft. The drying floors are made by laying 3-in. sewer pipe closely together, and carrying all the exhaust steam to a sewer and condenser, this water going back to the 3 boilers of 100 H. P. each made by the Erie Boiler Works, Erie, Pa. There are 12 down-draft kilns, each with a capacity of 40,000 brick, in a continuous row, beside a spur of the Pennsylvania Railroad, making the loading of cars inexpensive. William H. Haws is general manager.

TRADE CATALOGUES.

The Chisholm, Boyd & White Company, of Chicago, Ill., issues circulars describing the lime slaker, conveyor, mixer and automatic feeder which the firm manufactures as a useful adjunct to its briquetting press.

The Aultman Machinery Company, of Canton, O., issues a 32-page pamphlet of contractors' and municipal supplies. Besides describing general road machinery, particulars are given of the Aultman rock crusher. The Aultman Company erects complete plants for washing and calcining phosphate rock.

"The Control of Heat," a 16-page pamphlet published by Uehling, Steinbart & Company, of Carlstadt, N. J., describes the pneumatic pyrometer the company manufactures. Details of construction are given and the convenience and value of the instruments for blast furnaces, annealing furnaces and laboratory work are pointed out. Testimonials are presented from many of the largest iron and steel concerns in the country.

The Baldwin Locomotive Works, of Philadelphia, Pa., continues to publish its excellent series of illustrated pamphlets entitled "Records of Recent Construction." In No. 18 are shown 15 types of locomotives. Of especial interest are the locomotives built for the Eastern Bengal State Railways and the Great Northern Railway of England. The locomotives likely to most interest mining men are the electric and steam mining locomotives shown, and the combined rack and adhesion locomotive built for the Compania Minera de Peñoles for a narrow gauge road in Mexico, on which are grades of over 13%.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods of any kind, and shall be pleased to furnish them information, catalogues, etc.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, and have no pecuniary interest in buying and selling goods of any kind.

GENERAL MINING NEWS.

ALABAMA.

Coal Production.—State Mine Inspector J. de B. Hooper gives out his final figures of output for 1899 at 7,484,763 tons, compared to 6,527,766 tons for 1898, showing an increase of 956,997 tons. The following is the output by counties: Bibb, 904,887; Blount, 12,699; Cullman, 8,000; Etowah, 9,378; Jackson, 150; Jefferson, 4,700,982; Marion, 17,395; Shelby, 359,213; St. Clair, 67,977; Tuskaloosa, 241,740; Walker, 1,117,372; Winston, 19,970; smaller mines, 25,000. Grand total, 7,484,763.

ALASKA.

Douglas Island.

Alaska-Mexican Mining Company.—This company has elected the following: William Alvord, president; H. H. Taylor, R. D. Fry, E. W. Hopkins, Thomas Mein; secretary and treasurer, A. T. Corbus; superintendent, M. Robeson; bankers, Bank of California. The company paid four 10c. per share dividends last year, amounting to $72,000.

Alaska United Mining Company.—This company has elected the following directors: William Alvord, president; H. H. Taylor, E. W. Hopkins, Thomas Mein, R. M. Mein. Mr. A. T. Corbus was continued as secretary and treasurer, M. A. Robeson superintendent, and Bank of California, bankers. At last accounts intense cold had caused the tying up of a large number of stamps which will cause some temporary interruption in the bullion supply.

CALIFORNIA.

Amador County.

(From Our Special Correspondent.)

Bellwether.—This mine, ½ mile northeast from Jackson, worked by the Hepburn Gold Mining Company, is to be pumped out and development work resumed.

Oneida.—In the main shaft at this mine, 2 miles north of Jackson, a station has been cut at the 2,000-ft. level, and drifts are being run. The water has been pumped out of the old shaft to a depth of 600 ft. Work on the new mill will begin as soon as the lumber can be hauled.

Standard Electric Company.—This company is now building a 320-acre reservoir, 8 miles east from Jackson, in addition to those at Blue Lakes and Bear River. At the latter big dams are in course of construction, which will save waters now allowed to go to waste. The company will have an immense amount of electric power generated by the new plants along the Mokelumne River, and arrangements have been made to supply not only the mines, but to convey it to Oakland and San Francisco.

El Dorado County.

(From Our Special Correspondent.)

Esperanza.—At this mine, 1 mile northwest from Garden Valley, work has been resumed, and the shaft, which had reached a depth of 640 ft., is being pumped out. Robert Harrop is superintendent.

Vann.—Under the management of W. I. Smart, the development work at this mine, ¾ mile north from Georgetown, is progressing rapidly, and the mill will soon be in shape to make a test run.

Humbolt County.

(From Our Special Correspondent.)

Orleans Bar Gold Mining Company.—This company is building a 12-ft. flume to supply water to work its claims along the banks of the Klamath River, below the Siskiyou County line. About 50 men are at work on the flume, which will probably be completed by July.

Kern County.

(From Our Special Correspondent.)

Johannesburg Mill.—This mill is running night and day on ore from the Buckboard, Butte, Wedge, Ruby, Wasp, Windy and other mines. James Montgomery is in charge.

King Solomon.—This group of mines, near Randsburg, has been purchased by W. H. Price, W. W. Godsmark and other capitalists of Los Angeles, who are to pay a portion of the price out of the mine, all to be paid within one year. The shaft is down 500 ft. in good ore. W. W. Godsmark is superintendent.

Val Verde, Nos. 1 and 2.—Some very fine ore is being sent to the mill from these mines at Johannesburg. New works have been opened showing veins from 2 to 4 ft. wide. Willard, Hammond & Hamell are operating them.

Mariposa County.

Golden Crown Mining Company.—This company's affairs are being aired in court. The company's property, the Big Betsey Mine, is reported worthless, and E. H. Wemple is being sued for fraud.

Nevada County.

(From Our Special Correspondent.)

Empire Mines and Investment Company.—G. W. Starr has personal management of the property. The reopening of many of the properties has been postponed. T. H. Simmonds, the former superintendent, has resigned.

Red Ledge.—The mill at this mine, near French Corral, has been put in complete order, and has started with a force of 12 men.

Placer County.

(From Our Special Correspondent.)

Lermond.—The tunnel driven at this gravel mine, at Iowa Hill, has opened a channel of rich gravel 26 ft. wide and 4 ft. deep. The property is being worked by Lermond, Stone & Cripple.

Riverside County.

(From Our Special Correspondent.)

O. K.—The main shaft at this mine, 50 miles northeast from Walter's Station, is down 290 ft. in ore. The last assays in the 200-ft. drift were $43 per ton. The mill, 7 miles away, is being moved to the mine.

Shasta County.

Mountain Copper Company.—This company is seeking to patent several thousand acres of land near its Iron Mountain Mine. Owing to the well-known peculiarities of the United States land laws, the company applied for the land as agriculture, and technically it is probably patentable as such. Shasta County miners insist that the land is mineral, and are fighting the company's application.

(From Our Special Correspondent.)

Mammouth.—At this copper mine, on Little Backbone, near Kennett, the ore body has been cut by a 40-ft. upraise from the lower tunnel, at a point 250 ft. in from the face.

Spotted Horse.—This group of 11 claims, near French Gulch, is being developed by tunnels, one of which is in 135 ft., with a crosscut and an upraise. About 90 tons of fine ore are ready for shipment to the smelter at Keswick. W. Richards is the owner.

Uncle Sam.—At this mine, 7 miles west from Kennett, only 15 men are at present employed owing to a disagreement between the foreman and the superintendent. Since the cave-in some weeks ago, no work is being carried on in the parts of the mine thought to be dangerous. The mine is being timbered at many points. The mill will not be run at present. Frank Hollingsworth is superintendent.

Siskiyou County.

Siskiyou Placer Mining Company.—Judgment for $16,461 has been entered at New York City against this company in favor of Christopher Bargfrede on 31 notes of the company, made from September 1st, 1898, to November 28th, 1899. The company is a West Virginia corporation, organized 5 years ago, with a capital stock of $1,000,000, to work placer mines. The summons was served on William M. Middleton, the treasurer.

(From Our Special Correspondent.)

Humbug Flume and Mining Company.—The placer and hydraulic claims belonging to this company, at the mouth of the Humbug Creek, 12 miles northwest from Yreka, has been operated all winter by Sprengler Brothers, water being abundant. A good clean-up is expected. The

property is well equipped with a steam derrick, extensive flumes, giants, etc.

Oak Bar Mining Company.—This company has been organized by Portland, Ore., parties to work a hydraulic property at Oak Bar, 28 miles west from Yreka. A ditch 4½ miles in length has been constructed and piping will be completed about May 1st, ready for hydraulicking.

Trinity County.

(From Our Special Correspondent.)

Bully Choop.—The mill at this quartz mine, on the northwest side of Bully Choop Mountain, is almost completed, and will start up in a few days.

Chloride.—Development work at this mine, 2½ miles northeast from Dedrick, is pushed, and good ore is milled, while 42 men are employed. The property is managed by L. A. Scowden. The Bailey Mine, on Fisher Creek, owned by the same company, has developed a small vein of very rich ore.

Tuolumne County.

(From Our Special Correspondent.)

Four Oaks.—The shaft at this mine, ½ mile southeast from Big Oak Flat, is down 115 ft., and a crosscut has been run, cutting two quartz veins, which prospect well. The assays average over $25 per ton. Drifts are to be run. C. S. Shafer is superintendent.

Mazzeppa.—At this mine, 1 mile south from Stent, a fine vein is reported to have been cut on the 300-ft. level, and a quantity of high grade taken out. A Stockton company is operating the property.

Mississippi.—The 2-compartment shaft at this mine, at the lower end of Big Oak Flat, is down 80 ft., where a station is being cut. Sinking continues. Three shifts are working, and rapid progress is made. This mine is well equipped with new machinery, capable of sinking 1,000 ft. J. C. McLaughlin is in charge of the work. Sylvester Carton is superintendent.

Nonpariel.—At the 50-ft. level of this mine, 1½ miles northwest from Groveland, a crosscut has opened up a vein 31½ ft. wide, which averages $6 per ton. The ore will be sent to the Longfellow Mill.

Rhode Island.—The 3-compartment shaft at this mine at Groveland, is down 110 ft. A large hoisting plant is to be put in.

COLORADO.

Chaffee County.

(From Our Special Correspondent.)

Gladstone.—This mine, in Middle Cottonwood District, has resumed work after 15 years' idleness, with a large force, under a Leadville company.

Gold Cross.—Bennett Brothers have struck a big body of copper ore, carrying high values in gold and silver, in this claim at Maysville. An uprise is being driven on a 5½-ft. vein, assaying in places 10% copper.

Herschberger Tunnel.—This property, at Manoa, is in 300 ft., and will cut the vein at a depth of over 200 ft. within a few days.

Little Annie.—Twenty men are employed and the shaft is being sunk in good ore. The company intends erecting a concentrating plant.

North Cottonwood District.—McPhelemy Brothers opened up a streak of rich tellurium recently while working in a shallow shaft.

Queen City.—The shaft at this Salida claim is down 135 ft. and is being driven by 3 shifts. The ore body has widened to 30 in. and is shipping grade.

Gilpin County.

(From Our Special Correspondent.)

Mining Deeds and Transfers.—J. C. McCormack to H. Granfield, the Jack Lode; F. T. N. Shorey to J. Morgan, one-third interest in Hannibal Lode; J. H. Morton to F. E. Kirk, one-third interest in Wm. Bryan Lode.

Avon Mining, Milling and Power Company.—This company intends to erect a large concentrating mill on North Clear Creek, probably of 250 tons capacity, and expects to have it running by July. The company owns mines which can furnish lots of low grade ores, and besides can treat the heavy tonnage of ores now going to Clear Creek County mills. The company also intends to work its nugget placer on North Clear Creek by hydraulicking, and will build storage reservoirs, and install an electric plant for its own mills and other mills and mines.

Bates-Baxter.—The local lessees have leased a 25-stamp mill on North Clear Creek, and are taking out enough mill dirt to keep it running steadily. Smelting ore assaying $100 per ton has been opened. H. J. Sears, Central City, Colo., is manager.

Crown Point & Virginia.—The property near Russell Gulch was destroyed by fire February 23d, caused by an engineer dropping a lamp near the oil tank. The big shaft building was burnt to the ground, and the machinery is badly scorched and may be useless. There were 3 men in mine, who were taken out after the fire had died out. The loss will be about $5,000. The property was operated by the Colorado-California Shareholding, Mining and Milling Company, an Iowa company. W. H. Knowles, Idaho Springs, Colo., is manager.

Hayes & Wheeler.—The shaft building was burnt down February 23d. The machinery can be easily repaired. It is owned by the Hayes & Wheeler Gold Mining Company, operated by Kansas capital, who will rebuild at once. J. W. Cairns, Central City, is manager.

Scandia.—After an idleness of 10 years, this property is being started by its owner, C. R. Collins, of Bradford, Pa. The shaft is 400 ft. deep, and a full plant of machinery is being installed. Mike Weisbeck, Nevadaville, Colo., is manager.

Lake County—Leadville.

Rialto Leasing and Mining Company—At a meeting of the directors in Boston on February 26th, A. S. Lumbert, of Boston, was elected president; Wm. G. Reed, of Boston, was elected secretary and treasurer, and Edward L. Oppenheim, of New York, was elected vice-president. These gentlemen and John L. Hobson, of Haverhill, and E. B. Phillips, constitute the board of directors.

(From Our Special Correspondent.)

The only severe storm so far this winter came and went without seriously interfering with ore production. The South Park road alone was closed, the other roads being only slightly inconvenienced.

East Side Mining Company.—This concern, which is an organization of lot owners pricipally east of Harrison Ave., has a proposition to sell outright the mineral rights of their lots to a strong Eastern company.

Maple Street Mining Company.—This concern will open up the territory adjacent to the side of the old Grant Smelter at the foot of Maple Street. A shaft is sinking in California Gulch. Mr. J. A. Shinn has negotiated the deal, having as backers Messrs. Galob & Turnbull of the Bullard Mine, in the gold belt.

Midas.—This consolidation, adjoining the Home mining properties on the east, announces having opened an enormous deposit of argentiferous iron with some lead ore and 45 men are breaking and shipping from 150 to 175 tons daily. The ore body is known to be over 30 ft. thick at various points. This is the consolidation effected under Manager S. D. Nicholson.

Penn.—A beginning has been made. Development is beginning on the lower zones, where sulphide ores should exist. Manager Sullivan has the No. 1 shaft (sunk by the old Bruce Company) equipped with a good plant and will push work at greater depths.

Montrose County.

(From Our Special Correspondent.)

Mica Discovery.—Specimens are on exhibition from a vein of mica recently opened near Montrose by Jones, Clark & Huntsman. The vein has widened to 30 ft. and the mica is apparently of superior quality.

San Juan County.

(From Our Special Correspondent.)

Animas Smelting and Refining Company.—This company, capital $100,000, incorporators, E. L. Roberts, J. N. Pascoe, George Hemphill, Thomas Annear and B. B. Galvin, is to build a smelter at Silverton. A site has been selected and ore is being contracted for.

Silver Lake.—Report says this famous property is to be sold to New York parties for $2,000,000.

Silver Ledge.—Twelve men are employed on development work and milling ore is being blocked out for the summer run.

Stoiber Tunnel.—This tunnel, being driven to cut the big leads in the Silver Lake mineral belt, is in 800 ft. and work is progressing steadily. The tunnel is 6 by 8 ft. in the clear, and trenched for drainage. When completed it will be 3 miles long and will drain the entire basin. Power drills are to be put in at once.

Queen Anne.—Purpus & Williams have secured a bond and lease on this group and have a large force at work in fair ore.

Teller County—Cripple Creek.

(From Our Special Correspondent.)

C. O. D.—It is reported that a strike of good ore has been made by Mr. Penrose and others who have been leasing for some time. The property is owned by a French company and has produced considerable ore, though not for some time past. It is in Poverty Gulch near the Gold King.

Independence Town and Mining Company.—This company has declared a dividend of 1c. per share, making $12,500. It is understood that dividends will be paid from now on. The condition of the property is good and it is reported that the output is between $35,000 and $40,000 per month. W. S. Montgomery of Colorado Springs is president and general manager.

Nugget Mining and Milling Company.—An order restraining the Doctor from taking out ore within the lines of the Elizabeth Cooper claim has been issued by the United States Court in Cheyenne, Wyo. This order holds until the preliminary hearing is had for a permanent injunction before Judge Hallet in Denver on February 28th.

Pappoose Gold Mining Company.—Byers & Griswold, the lessees, are at present getting some good ore on this property. These parties have quite a long lease on the whole of the company's property. A number of sub-leases are also under way. The company recently bought the Squaw Mt. tunnel to avoid litigation.

Rose Nicol Gold Mining Company.—Work has started on the Rose claim. A new shaft house is built and a 30 H. P. boiler and a double friction 7 by 10 in. Hendrie & Bolthoff hoist in place. The shaft is about 75 ft. deep and sinking continues. The property is situated on Battle Mountain near the Wisconsin group of the Portland. Nat Wilson of Cripple Creek is in charge.

Temonj Mining and Milling Company.—W. S. Stratton has acquired over 90% of the company's stock, it is understood, for 30 and 35c. per share. On the mining exchange the stock made a tremendous jump. The company owns about 27 acres of ground on Gold Hill adjoining the Moon-Anchor.

GEORGIA.

Governor Candler has appointed the following delegates to the International Mining Congress, which opens at Milwaukee, Wis., June 19th: R. R. Asbury, Cleveland; Captain D. H. Jaquish, Gainesville; Captain W. J. Worley, Dahlonega; W. H. McAfee, Dahlonega; Captain John Martin, Nacoochee; A. T. Hamilton, Etna; Professor W. S. Yeates, Atlanta; Col. B. F. Perry, Canton; J. W. Underwood, Cleveland; R. T. Kennimer, Cleveland; Col. J. F. Moore, Dahlonega; Col. George F. Aubrey, Cartersville; Col. Geo. H. Clarke, Cedartown; Capt. R. H. Cooper, Cartersville; W. A. Charters, Dahlonega; Joel T. Miller, Auraria; Linton Sparks, Cave Springs; Col. R. J. Lowry, Atlanta; Col. John W. Adams, Dahlonega; W. C. Bunn, Cedartown; L. S. Ledbetter, Cedartown; James R. Barber, Cedartown; S. N. Wharton, Dahlonega; H. D. Ingersoll, Dahlonega; J. M. Moore, Villa Rica; Jesse Lumsden, Nacoochee; John Postell, Cartersville; W. A. Post, Gainesville; Col. W. S. Coleman, Cedartown; George W. Sheppard, Tallapoosa, Capt. R. K. Reads, Athens. Prof. W. S. Yeates will head the delegation.

Lumpkin County.

Dahlonega Gold Mining and Milling Company.—This company has filed articles of incorporation, with office in Dahlonega. The capital stock is $2,500,000 and the incorporators are C. W. Freeman, St. Louis; Thomas F. Cravens, Robert R. Disney, Charles F. Perce, Chicago.

IDAHO.

Idaho County.

Ajax.—The ledge on this claim, in Dixie District, is reported cut at a depth of 65 ft., showing 18 ft. of gold ore. The claim is owned by the Midas Gold Mining Company, in which Campbell & Finch, of Spokane, are interested, and 15 men are busy.

Kootenai County.

Marguerite Gold Mining Company.—This company owns claims on Trestle Creek, 3 miles west of Hope. A ledge is reported opened showing a 10-in. pay streak carrying high values in gold. Most of the stock is owned in Spokane. J. Johnston is superintendent.

Shoshone County.

Checkmate.—The old 5-stamp mill at this mine on Willow Creek is reported crushing 26 tons of ore daily. A steam hoist and 5 additional stamps with a crusher and 2 concentrating tables will be shipped soon from Salt Lake. G. H. Wyman is superintendent.

Independence.—On this group of claims above Mullan, on Mill Creek, now worked under bond, a 1,200-ft. tunnel is being driven.

Lucky Friday.—On this claim, near Mullan, a tunnel has been driven 800 ft.

Mammoth.—This company, near Wallace, is mining a new tunnel to cut its workings at a lower level. The tunnel will be run 4,000 ft. to cut the vein, and will run in the vein an additional 4,000 ft.

Silver Eagle.—This company, near Dobson's Pass, is running a 1,250-ft. tunnel, which is two-thirds done.

Stevens Peak Mining Company.—The company has its tunnel on Willow Creek, in about 400 ft. on the vein.

MICHIGAN.

Copper.

Arcadian.—A 70-drill compressor at No. 4 shaft was built by the B. V. Nordberg Manufacturing Company, of Milwaukee, and is of a horizontal, triple expansion, steam jacketed type. The steam cylinders are back of the air cylin-

ders, the latter being attached to the frames. The piston rods extend through the back heads of the air cylinders, and are connected to the piston rods of the steam cylinders. There is a tubular air cooler located between the high and intermediate, and one between the intermediate and low pressure air cylinders, and a reheater receiver located between the high and intermediate, and one between the intermediate and low pressure steam cylinders. The steam cylinders are fitted with Nordberg-Corliss valve gear, the cutoff on the high pressure being under control of a combined static and pressure regulator, and on the intermediate and low pressure it is regulated by hand. This compressor goes into commission very soon.

Iron—Marquette Range.

Billey.—The Oliver Mining Company is preparing to resume work on this mine north of Humboldt.

Champion Iron Company.—This company is to reopen the North Champion Mine north of Champion on the Dexter Range, that has been closed for a number of years. The ore is said to run 52 to 55% iron, but is non-Bessemer. The mine will be worked as an open pit, the surface covering being light.

Iron—Menominee Range.

Michigan.—This property, south of Amasa, is being opened up by the Oliver Mining Company. A new incline shaft is going down in foot wall 200 ft. south of the old shaft. Boilers, pump hoist and a 5-drill compressor are at work. Capt. Williams is in charge.

MINNESOTA.

(From Our Special Correspondent.)

The output of the Vermilion has been practically all taken for some time, but on the Mesabi there are several properties not yet in ore that are willing to negotiate for deliveries the coming season. The question of labor has not been so serious as was at one time feared.

In connection with its new dock at Duluth the Great Northern road is erecting an approach nearly a mile long, which is expected to be ready about May 1st. Vessel charters for the early season are still made at $1.25 a ton, though but few vessels are to be had except at full season contracts with a rate that figures higher.

Iron—Mesabi Range.

(From Our Special Correspondent.)

Chandler Mining Company.—This company has 6 power drills at work on lands under option in the east side of T. 58, R. 20.

A hot fight will take place over lands in sections 15 and 23, T. 58, R. 19, part of which are under lease to the Oliver Mining Company, and all of which are owned by Rev. F. S. Kosmerl, of Duluth. If the claimants are successful they will refuse to recognize the Oliver lease.

Lake Superior Consolidated.—This company's No. 1 shaft at the Hull Mine was burned last week, possibly by incendiarism. It will be rebuilt at once.

Negotiations are expected to be closed this week for the sale of the lease of the Spruce and Cloquet mines, at Eveleth, from P. L. Kimberley to the National Steel Company for the sum of $1,100,000. The ore reserves of Cloquet are not known, and the quality of this ore, so far as determined, is not of the very best. Spruce has a showing of ore, almost entirely by diamond drill borings, etc., of about 7,000,000 tons, so good that the whole can be mixed to make a Bessemer shipment. It is a fine ore, physically. The mine belongs to Messrs. Dorr, Fowler, Robinson and others, Michigan lumbermen, who are the owners, also, of Fayal and Adams, in the same group. They exact 25c. a ton royalty on all ore mined the coming 3 seasons, and 30c. thereafter for the 50 years of the lease. It is this right to pay 30c. a ton for 7,000,000 tons of ore in the ground that the National Steel Company is buying for $1,100,000, plus the speculative value of Cloquet. If Spruce is mined out in, say, 25 years there is the 30c. royalty, bonus of 17c. a ton, and the interest, which if figured at 4% will add 8c. more, or a charge of 55c. a ton in the ground, roughly speaking. Nine months ago the National Steel Company, or any other, might have taken this property on a bonus of less than $125,000, and there has since been no development at the mine that really adds much to the known extent of its ore body. None of the large Minnesota mining concerns would touch it.

Iron—Vermilion Range.

(From Our Special Correspondent.)

Chandler Mining Company.—The company's stock is now quoted at $75 a share, against about $25 or par, little over a year ago. Preparations are made for an output as large as in 1899, which will mean a mining duty for the year more than 100,000 tons greater than in any year of the mine's history.

Mahoning Ore and Steel Company.—This company is erecting permanent camps at one of its explorations close to Tower, and the outlook is said to be excellent. Cole & McDonald have started a diamond drill on other property, and in all the company has 3 drills working with another soon to start. There is some talk of an attempt to organize the mine workers into a union, but it is hardly likely to succeed. The Vermilion Range miners are now receiving more pay than men on the same class of work in any other part of the country.

Oliver Iron Mining Cmpany.—At this company's Pioneer Mine there are about 120,000 tons in stock and there will be nearly 200,000 tons by the opening of navigation. The mine is employing about 450 men and is doing a large amount of development. H. B. Sturtevant, who has been in charge for the last 5 years, has resigned and is succeeded by Charles Trezona, who has been mining captain. R. Toms becomes mining captain. At the company's Savoy and Zenith Mine work is steadily going forward and a large stockpile is on surface. The two will ship at least 100,000 tons each this season, giving this company from its Ely mines a total of about 700,000 tons of the finest hard ore mined anywhere.

Oliver Iron Mining Company.—This company is sinking a new shaft south of No. 1 to a depth of 800 ft.

MISSOURI.

Jasper County.

Missouri-Kansas Zinc Miners' Association.—The board of directors has issued an address to the members which we briefly notice:

"This association has been in existence but little over a year. While it has had the moral support of the great majority of the mining public, it has not received fair financial support. Many new owners have failed to join our alliance, and many of the old producers have become lukewarm or indifferent, contributing nothing to the support of our organization, and perhaps selfishly relying on our ability to carry through our measures, without any pecuniary sacrifice on their part. The association's expenses include office rent, secretary's salary and stenographer, stationery, etc., and outside of these, we may at special times find it necessary to export either ore or metal. Furthermore, the project of building a smelter has not been abandoned. The board of directors has met often and endeavored to work out several plans that promised to be of great benefit. Among other acts, was the exportation of about 1,100 tons of metal in December and January, resulting in immediate improvement in the metal and ore markets. This shipment started an export movement that up to date amounts to about 6,000 tons of metal. Through the action of the board and the export of this metal, the district was benefitted to the extent of $13,500 for each week's production. During the year 1898, without the association, the average price of zinc ore was $25.25 per ton. During the year 1899, through the effective work of the association, the average price of ore was $37, an increase of 46½%, or $11.75 per ton. The average price of spelter from January 1st to February 17th, 1899, was $5.81, while for the corresponding period of 1900, the average price was $4.65. But notwithstanding this decrease of 20% in the price of spelter, ore has been maintained for the first 7 weeks of this year at the average price prevailing for the same period of 1899. This means to each producer $6.10 for every ton of ore raised in the district through the existence of the Association. The directors have done everything to bring about an understanding with the smelter men regarding the selling of ore upon a satisfactory basis to all, but several of the large smelters selfishly held aloof, and all efforts have failed. The smelter men are now more unanimous than ever to bring about the downfall of our organization. We have shown conclusively direct benefits amounting to $6.10 for each ton of ore sold, and we ask for but 25c. per ton to maintain our work. This amount from all producers and $5 a year from such non-producers as are interested, would give us ample funds. E. D. Porter, J. R. Holmes, J. G. Stewart, Hugh McIndoe, J. P. McCann, J. B. Daniel, J. N. Strickler, T. J. Steers, T. J. Morgan, B. Cooley, E. O. Bartlett, S. T. Howe, Jas. Campbell, C. A. Braley, W. E. Haymond."

(From Our Special Correspondent.)

Joplin Ore Market.—The weather has been the worst this winter; 4 days of rain or snow were followed by very cold weather, causing a large amount of ore to freeze in the bins so that it could not be hauled, and the turn-in was greatly cut down by 1,500,000 lbs. on this account. There will be a very large turn-in the first pleasant week, as there is an excellent demand for ore, and the short ouput of the past 2 or 3 weeks has made many of the smelters short. There was no change in the price. The Colonial Zinc Company at Belleville again headed the list, selling at $34.50; 2 cars of the Boston-Aurora Zinc Company's ore sold at $33.50, the Rabbit's Foot at Central City sold at $33 and the Oronogo and Joplin ore sold for $32. The top price at Galena was $30 per ton.

During the corresponding week last year, top grade zinc ore sold at $42 per ton and lead ore sold at $26 per 1,000 lbs. The turn-in of zinc was greater than last week by 784,490 lbs., but the lead sales were less by 318,680 lbs., and on account of the high price of zinc, the value was greater by $34,230. For the first 8 weeks last year the sales were less by 4,066,600 lbs. of zinc and 1,518,130 lbs. of lead, and the value was less by $22,908. As compared with the preceding week, the lead sales were greater by 58,740 lbs., but the zinc sales were less by 1,448,400 lbs., and the value was less by $19,541. Following is the turn-in by camps:

	Zinc, lbs.	Lead, lbs.	Value.
Joplin	1,161,270	360,130	$27,888
Galena-Empire	2,129,000	184,720	35,960
Carterville	1,089,550	253,380	23,395
Belleville	279,530	11,940	5,718
Oronogo	587,910	15,130	9,583
Webb City	25,430	8,000	602
Aurora	810,000	10,550	10,410
Central City	131,790	9,370	2,134
South Jackson	9,230	20,990	706
Stotts City	249,220	.....	3,863
Carthage	233,500	.....	3,680
Granby	312,000	6,500	4,300
Lehigh	49,230	.....	764
Cave Springs	59,380	.....	861
District total	7,585,390	914,130	$137,020
Total 8 weeks	73,246,100	8,095,490	$1,312,848

Mining Land Sales.—The Marney 40-acre farm at Spurgeon, Mo., has been purchased by James H. Slate, of Elkhart, Ind., for $3,750. The Moseley Mines, in Newton County, near Neosho, have been sold to D. A. Mayer, R. D. Somers and A. W. Canady, of Boone County, Mo., for $12,000. The greater portion of the stock in the Masoutah Mine, on the Beckwith-Hall lease at Carterville, has been sold to Virginia parties for $25,000. Levi Storks, of Iowa, has purchased the Up-to-Date Mine on the Mohaska lease at Blendville for $12,000. The Scotch Mining Company, on the Boston-Springfield ground at Roaring Springs, has purchased 4 lots north of their old ground of Col. H. H. Gregg, paying $18,000 for the tract. John H. Flannagan and wife have sold to George W. Mattison 40 acres of ground near Knights Station for mining purposes, the consideration being $1,000. J. C. Stewart, of Webb City, has purchased a one-quarter interest in the Otto Wise shaft on the Sphynx lease, at Neck City, for $6,000. A 20-ft. face of very high grade ore is developed. J. E. Bell, A. L. Olive and V. L. Chester, of Carthage, have purchased a controlling interest in the Hawkeye Mine on the Center Valley land at Oronogo, and will assume control of the property. They opened the mine last year, and it developed into a great producer. The Oakland Mining Company bought it for a large sum, but failed to make it meet expectations. The Litigation Mine and 2 lots on the ground of the Continental Zinc Company at Joplin have been sold by George W. Wood to Charles H. Berry and S. N. Pilcher, of Boston, Mass., for $10,000. The shaft was owned by J. W. Ground, James Luke, W. W. Calhoun and G. F. Harrison.

MONTANA.

Boulder County.

Milwaukee-Montana Natural Bridge Gold and Copper Mining Company.—This Milwaukee company is developing a group of claims, the most prominent being the Jefferson. It is said that a 10-stamp mill will be erected in the spring.

Jefferson County.

(From Our Special Correspondent.)

Crystal.—This property, at Rocker, 10 miles from Basin, belonging to the E. W. and Geo. Beattie, of Helena, is being worked under bond by Butte parties who are making weekly shipments of copper ore to Butte.

Lowlands Mining Company.—A shipment of 153 sacks of concentrates from the tables of the Ruby mill are said to have returned $1,100 per ton in gold and silver. The ore came from the dump of the Columbia Mine.

New Elkhorn.—Work of dismantaling the mill at Elkhorn is about completed. Several cars of machinery are loaded ready to be moved elsewhere. It is rumored that Manager W. D. Kelley will be placed in charge of the same company's property at Leadville, Colo.

Lewis & Clarke County.

(From Our Special Correspondent.)

Belmont.—This property, owned and worked by the Longmaid Brothers, and situated about 3 miles from Marysville, has the new cyanide plant running.

Cruse.—This property, at Marysville, owned by Tommy Cruse, has 40 men on the payroll. A fine body of gold ore has been opened and the 20-stamp mill has been running continuously all winter. It is said the mill is to be enlarged in the near future.

Empire.—Duluth people bought this property last fall, and have repaired the 60-stamp mill. Tests have been run on new ore bodies, which have been opened up, and preparations for an active season are taking place. Owen Byrnes is general manager and has been the leading spirit in everything connected with the enterprise. There is talk of a cyanide plant to treat the old accumulations of tailings on similar lines to the Drumlummon plant.

Madison County.

Alderson Company.—This company is opening the Brother Jonathan claim near Sheridan. The trustees elected for the ensuing year are Matt. W. Alderson, R. C. Waite, C. Almer Shay, M. L. Alderson of Moffett, and J. W. Cox of Sioux City.

Madisonian.—This mill and mine at Norris are owned by J. H. Conrad of Salt Lake and Frank and R. B. Turner. The War Eagle Company of British Columbia had an option on the property, but allowed it to expire. About 30 miners are busy and the mill handles 40 tons daily.

NEVADA.

Esmeralda County.

Vulcan Copper Mining and Smelting Company.—This company, of which Henry Siegel, of New York and Chicago, is president, and Joseph Siegel, of Sodaville, Nev., is vice-president, with a capital stock of $1,000,000, is opening mines near Sodaville.

OREGON.

Josephine County.

(From Our Special Correspondent.)

Big Yank.—C. J. Allen and associates are developing a prospect on this ledge, near Galice, and have completed a 350-ft. tunnel and intend to extend it 650 ft. further to crosscut the ledge under what at the surface appears to be the best ore shoot.

Golden Wedge.—In this Galice Creek mine the ore body free milling at the surface is changing to sulphides at 100 ft., but still carries from 2 to 3 oz. of free gold per ton. Two tunnels are being driven to cut the ledge at 100 and 200 ft. respectively.

Lost Flat.—This Galice property changed hands February 10th, and the new management will start development at once. C. L. Johnson, of Colorado Springs, one of the owners, will be in charge.

Rocky Gulch.—This Galice Creek placer mine, owned and worked by the Rocky Gulch Mining Company, consists of 160 acres of auriferous gravel, part of which has been piped to bedrock. H. L. Lewis, manager, reports a satisfactory season's run.

PENNSYLVANIA.

Anthracite.

Mount Pleasant.—Four men were killed on February 26th in this colliery by the breaking of a mine-carriage. The men were descending on the carriage to the sixth vein. When it reached the fifth vein, going down at a rapid rate, it struck an adjustable shelf, breaking the bottom of the carriage, and dropping the men to the pit, 75 ft. below.

Bituminous Coal.

Fifteen hundred miners in the Jefferson and Elm fields at Brockwayville, Crenshaw, and Dagus have been advised that they will receive a wage increase of 20% on March 1st. Pick mining will be advanced to 60c. a net ton, with a corresponding advance for other branches of labor. The miners interested are mostly employes of the Northwestern Mining and Exchange Company.

H. C. Frick Coke Company.—The company has advanced the wages of all its employes 12½%, to take effect March 1st. The wages are the highest paid in the history of coke-making. The miners will receive $1.25 per 100 bu. of coal, which is considerably higher than the wages paid the bituminous coal miners in neighboring districts. This will raise the average wages paid to $2.50 per day.

RHODE ISLAND.

Newport County.

Compressed Coal Company of New England.—A certain Boston newspaper has stated that the Portsmouth mines containe coal "very pure in carbon and deficient in gas, giving an intense heat, but difficult to ignite. It is an ideal fuel for smelting furnaces, but it is coal for domestic purposes that is now wanted, and the Compressed Coal Company had to face this situation: No market of reasonable size for smelting fuel and a large market for domestic coal of the best quality only."

Now the Portsmouth coal is undoubtedly high in carbon and low in gas. In fact, some coal seams near by approach graphite, and graphite of fair quality is mined at Cranston, near Providence, from a much altered bed of coal. The Portsmouth coal mine was worked for over 50 years. Some of the fuel was bought by the neighboring farmers for domestic use, and after 1866 a large amount was used by the Taunton Copper Company, for its copper smelter, near by. As to New England, not affording a market for such fuel, that was something for the company to find out before it started work. As a matter of fact, it is very doubtful if there was much coal in sight in the mine when the Taunton Copper Company stopped work, about 1880. Much of the machinery put in by the Compressed Coal Company has been removed and a new plant employing some "secret chemical" as a binder is being put in by the Zwoyer Fuel Company of Reading, Pa.

SOUTH DAKOTA.

Custer County.

(From Our Special Correspondent.)

Chicago Mica Company.—H. S. Recob and C. F. Black, of Chicago, who are interested in the company, have been in Custer looking over a plan for erecting a mill for grinding the mica from the company's mine, down French Creek, east of Custer.

Kaolin.—A 12-ft. ledge of kaolin, 5 miles east of Custer, is opened by W. R. Bond and associates, of Custer. Offers of $14 per ton at Canton, O., have been received, with other proposals of $6 per ton at Custer, f.o.b. A shaft has been sunk 25 ft.

Spokane.—Considerable machinery has arrived at this mine, south of Keystone, for the new 50-ton concentrating plant. The mine is owned by the Crown Hill Mining Company. S. E. Young, of Sioux Falls, general superintendent.

Vigilante.—The crosscut at the 160-ft. level has struck the copper ledge and is working in ore that will run 2% copper and about $5 per ton gold. The company is working 14 men, on two shifts.

Lawrence County.

(From Our Special Correspondent.)

British-American Gold and Copper Company.—J. M. Sweeney, of Detroit, secretary and general manager of the company; B. R. Noble, vice-president, of Yale, Mich., and Isaac Noble, of Rochester, N. Y., have been in the Hills looking over the company's properties. The shaft in Butcher Gulch is down 160 ft., and a crosscut has been run about 60 ft. east. The visiting members of the company selected a site for a smelting plant at the copper ground west of Rochford, in Pennington County.

Detroit & Deadwood.—A crosscut has been started in the main tunnel in Deadwood. Five feet per day are being made with one air drill.

Galena Mining and Smelting Company.—H. H. Armstead, of New York City, general manager of this company, better known as the Union Hill, is in the hills. Work is in progress at the Hoodoo and Alert claims. It is understood that this development will continue until the company is satisfied of the permanency of the ore bodies.

Hardin.—A body of silicious ore has been struck above the pyritic ore shoot in the original Hardin Mine, in Two Bit. The mine is shipping about 40 tons of pyritic ore to the smelter daily.

Homestake.—A large force of men are completing the Ellison hoisting plant. The 4 crushers are in place, and all of the woodwork finished. The engine and boiler rooms are completed.

S. D. Thacher Gold Mining Company.—This company has been organized with 500,000 shares, par value $1 each. The officers are: President, S. D. Thacher, Kansas City; vice-president and general manager, C. E. McHugh, Deadwood; secretary and treasurer, J. E. Hall, Kansas City; directors, with the officers, B. E. Barr and S. E. Shuman, Kansas City. The company intends to develop the Gordon group of claims, embracing 160 acres of patented land, in the Two Bit District, near the original Hardin Mine. Prospecting with a diamond drill will be done first.

Squaw Creek.—F. H. Denman, of Denver, will take the superintendency of the Coolgardie Mine, on Squaw Creek, which was recently bonded by C. D. Wood, of that city. A tunnel is being driven into the mountain 110 ft., which will tap a ledge of ore that outcrops at the surface.

UTAH.

(From Our Special Correspondent.)

Bullion and Ore Shipments.—During the week ending February 24th there were sent forward from the different smelteries 18 cars, or 762,328 lbs. lead-silver bullion; 6 cars, or 307,940 lbs. cars copper bullion. In the same week the ore and concentrate shipments from the several camps, to smelteries outside of the State, aggregates 84 cars, or 3,522,370 lbs.

New Custom Smelter.—No new plant can go into commission before 1901 and the talk of another smelter in blast here this season is idiocy.

Juab County.

(From Our Special Correspondent.)

Tintic Shipments.—In the week ending February 17th there were forwarded from the 3 railroad points of the district 70 cars of ore and 3 cars of concentrates contributed as follows: Centennial-Eureka, 22 cars; Gemini, 11 cars; Swansea, 9 cars; Bullion-Beck, 5 cars; Mammoth, 5 cars ore and 3 cars concentrates; Uncle Sam, 5 cars; South Swansea, 4 cars; Godiva, 3 cars; Ajax, 2 cars; Sunbeam, 2 cars; Star Consolidated, 2 cars. Shipments of hematite for flux were stopped by a peremptory order that the smelters would not receive any more ore from the Tintic Iron till some misunderstanding was straightened out.

Summit County.

Daly-West.—On February 20th the newly elected directors met and named the following officers: R. C. Chambers, president; Jacob E. Bamberger, vice-president and general manager; W. S. McCornick, treasurer; Josiah Barnett, secretary. Mr. Bamberger will assume the duties of manager March 1st. Rumors of a change of policy as to production and dividends had no foundation. Mr. Bamberger visited the mine on February 23d and expressed himself agreeably surprised at reserves blocked out and conditions generally.

(From Our Special Correspondent.)

Park City Shipments.—In the week of February 24th ore and concentrate products forwarded from the camp aggregated 3,424,950 lbs. and were contributed as follows: Silver King, crude, 1,063,940 lbs.; Daly-West, crude, 938,550 lbs.; concentrates, 708,700 lbs.; Anchor, concentrates, 408,710 lbs.; Ontario, crude, 305,050 lbs.

Daly Mining Company.—At Salt Lake City on February 19th the annual meeting was held. The old directorate, consisting of Messrs. J. B. Haggin, R. C. Chambers, George M. Scott, David Keith and Richard Mackintosh, was re-elected. A vigorous protest was filed against the present regime by Attorneys George W. Moyer and P. J. Daly and a committee of 5 consisting of Messrs. James L. Pollock, C. L. Rood, Hugh Anderson, George D. Blood and James McGregor was appointed to examine the property and books and report on February 28th to the shareholders, to which date the meeting adjourned. The report of the president and treasurer shows $23,500 on hand.

Daly-West Mining Company.—At the annual meeting at Salt Lake City on February 19th the report of President-Manager John J. Daly met with hearty approval. The new directorate is Messrs. R. C. Chambers, J. E. Bamberger, W. S. McCornick, Ezra Thompson and Josiah Barnett, all of Salt Lake City. Probably Mr. Chambers will be president and Mr. Bamberger general manager. The reports for the past year show that 4,090 ft. of development were accomplished, making a total of 19,467 ft. of openings; depth of shaft, 1,440 ft., with 3 main levels 900, 1,200 and 1,400 ft. Since resuming active mining in April, 1899, to January, 1900, 7,792 tons of shipping ore and 17,169 of second class, or concentrating mineral, were mined, affording a yield of $549,721 at a total cost of $171,810.05, or net profit of $377,911.09, or 68.76% of the gross earnings. The supplemental report from January 1st to February 19th, 1900, shows receipts from ore sales to be $162,486.48, expenses $45,048.24, or 72.2% of the gross earnings. Since January the concentrating mill has been operated at full capacity. A second compressor is installed. To date 7 dividends have been paid, aggregating $232,500. The new control finds the company out of debt, with the property magnificently equipped, and with $57,000 in the treasury. President-Manager Daly steps out with the apreciation of the shareholders.

Tooele County.

(From Our Special Correspondent.)

Daisy.—It is learned that the last consignment of cyanides returned $2,900, when $6,000 was the least looked for. Employes are operating mine and mill for a few days to use up supply on hand, and they are to have the entire yield against the February payroll. The outstanding debt is at least $35,000, and the shareowners, undoubtedly, will lose the property.

Geyser-Marion.—Another ore body of fair milling grade is cut, which is said to cover 1½ acres. Thanks for such favors; there may be others.

Mercur-De La Mar Consolidation.—Prior to the building of the De La Mar cyaniding mills, and since, it has been a scheme of Captain De La Mar to unite his holdings with those of the Mercur Company. More recently the Mercur Company has inclined to this view and to-day it looks as though this plan—which will redound to the advantage of each—will soon be consummated. Larger net earnings will thus be made, while a compliment of ores will be regularly supplied which will afford the best charge for cyaniding. Mercur ores will be mined through the De La Mar shaft and the gold won in the De La Mar mill. The Mercur directorate has authorized President Dern to act in the premises. Before General Manager Cohen went to California, 2 weeks ago, he and Manager McVichie spent several days underground in the Mercur.

Overland.—Banker W. S. McCormick is one of the directorate, as are also Manager G. A. Duncan and J. Angus McDougall, formerly of Boston, who is the new secretary in charge of the Salt Lake office. The mill's capacity is to be 500 tons daily and systematic exploration is to be advanced vigorously—already there are large proven ore reserves. To pay for needed betterments $150,000 bonds will be issued and placed by Mills & Blanchard, bankers of Boston. Mr. Blanchard returned East on the 24th.

FOREIGN MINING NEWS.

AUSTRALASIA.

New Zealand.

(From Our Special Correspondent.)

During the month of November, 1899, the New Zealand export of gold was valued at £104,072 ($520,360), and that of silver at £3,664 ($18,320). For the 4 weeks ending December 31st, the returns from the Hauraki gold-fields amounted to £51,844, the chief yields being: Waihi, £23,089 ($115,445), from 8,888 tons; Waitekauri, £7,941 ($39,705), from 2,567 tons; N. Z. Crown, £6,294 ($31,470), from 2,874 tons; Kauri Freeholds, £2,610 ($13,050), from 2,040 tons; Talisman, £2,215 ($11,075) from 760 tons; May Queen, £1,750 ($8,750), from 464½ tons; Whangamata Corporation, £1,521 ($7,605), from 770 tons; Four-in-Hand, £1,005 ($5,025), from 130 tons.

The December return of the Progress Mines at Reefton was £6,117 ($30,585) from 3,234 tons treated by battery amalgamation and 65 tons of concentrates treated by chlorination.

It has lately been announced that the Waihi Union Company, an offshoot of the Waihi Company, has bought the mine and 40-stamp battery of the Waihi Silverton Company for £35,000 ($175,000). The Waihi Union Company has not hitherto been a producer, but as crushing has begun at the new battery, returns may shortly be looked for. The Waihi Silverton Company had a somewhat unfortunate career. It started 4 years ago with 1 or 2 fair returns, but since then the ore has averaged but little over £1 per ton.

CANADA.

British Columbia—West Kootenay District.

Rossland Ore Shipments.—The output from January 1st to February 21st amounted to 32,000 tons, valued at $512,000 gross.

(From Our Special Correspondent.)

Recording Assessment Work.—Hon. J. F. Hume, minister of mines, recently instructed the various gold commissioners throughout the province not to issue a certificate of improvements for any mineral claim until the books of the mining recorder of the domain in which each claim is situated show certificates of work amounting to $500 to have been duly issued and recorded.

Previous to this ruling it was the practice for the gold commissioners to issue certificates of improvement irrespective of the number of certificates of work which were recorded.

British Columbia.—Yale District.

(From Our Special Correspondent.)

Copper King.—This claim is at Cherry Creek. A tunnel was started to cut the lead. The vein is reported to be about 3 ft. wide.

Iron Mask.—This Kamloops property has not been worked since action was started by Thomas Newman to acquire an interest. About 85 tons of ore were shipped, giving 13% copper and $4.50 in gold.

Kimberly Group.—This is said on reliable authority to rival the Port Hope Group. Development work comprises a tunnel and a crosscut, the latter 18 ft. wide. The ore averages about $12 in gold and copper.

Lucky Strike.—On this Kamloops claim a double compartment shaft has been sunk 92 ft., showing a 4½ ft. vein of high grade chalcopyrite down to 27 ft., where a fault cuts it. The vein is found again about 1,500 ft. east with the same character to the ore. The returns shows copper 24%, silver 6 oz., and gold $14. The survey for a Crown grant is completed.

Port Hope Group.—This, the only developed property in Kamloops Division, is owned by the Scottish Mines Syndicate of Glasgow, Scotland. Large bodies of low grade ore have been developed. The shaft is down 340 ft., and the different levels, at 150, 250 and 300 ft., proves that the native copper is changing into chalcopyrite.

Python.—Work began on this Rossland claim in July, 1899, and a shaft is down 90 ft., with a 75 ft. drift on the lead at 55 ft. The bottom of the shaft is in a pink spar matter carrying low grade copper values. A 30-ft. crosscut is in good concentrating ore. The smelter returns go about 8% copper and from $4 to $6 in gold.

Tender Foot.—This claim in Kamloops Division is now worked by a local company under the direction of O. S. Batchelder. The vein has a surface width of 27 ft. The ore is bornite chalcopyrite, and black oxide of copper, and assays $4 in gold, $4.80 in silver and 77% in copper. Shipments of sorted have returned $51.64 per ton.

CENTRAL AMERICA.

Honduras.

New York and Camalote Mining Company.—The company applied to the New York Supreme Court, through Directors Byron E. Huntley of Batavia, N. Y., William B. Sylvester of Brockport, and Frank E. Williams of Rochester, for the voluntary dissolution of the corporation, and Judge Smyth appointed Vernon M. Davis referee and set down the order to show cause for May 31st. The company was organized in 1881, with a capital stock of $1,000,000, to work a gold and silver mine in Honduras, which proved unprofitable. The company has no creditors, and the only assets are old machinery and mining rights.

EUROPE.

Austria.

The miners' strike in Austria, which threatens to become general, began in the Köflach District of Styria, extended to Austrian Silesia, Moravia and Bohemia; 60,000 men having refused to go down, chiefly at Mährisch-Ostrau, Witkowitz and Karwin, in Austrian Silesia, and Kladno and Pilsen, in Bohemia. The mine owners, who are large landed proprietors, such as the Archduke Frederick, Price Schwarzenberg, Count Larisch and Baron Rothschild, are disposed to make large concessions; but the men hold out for an 8-hour day, increased wages and fortnightly pays. The deficiency of coal is becoming serious, all the more because it cannot well be imported from Germany, which country has only just enough for its own requirements. Several large iron works have been obliged to suspend operations through lack of coal, and the railway and gas companies are also in great difficulties for the same reason, while at Prague all the schools are closed for want of fuel. The ministry intervened by proposing a court of arbitration, whose decision would be obligatory, as serious disorder was feared, the contents of a coal wagon at Pilsen having been appropriated by the populace. On the initiative of the Minister for Justice, arbitration boards met at Oderberg, Kladno and Pilsen; but, while that at the former place seems likely to bring about an understanding, those at the other two have signally failed in their object, the masters declining to enter into negotiations with the men because they are acting under the influence of third parties unconnected with the coal trade in the one case, and because they have taken up illegal ground in the other.

MEXICO.

Michoacan.

(From an Occasional Correspondent.)

Mr. C. Lafargue, managing director of the Inguaran Copper Mining Company, whose principal officers are in Paris, is now in Mexico and had been inspecting several mines in the Inguaran Mining District, located in the State of Michoacan. The development work at the mines of the Inguaran Company is being vigorously pushed, and work already done has shown very large bodies of low-grade ore intersected by bands of comparatively rich concentrating ore. The company contemplates the building of two large smelters at a point on the Marquez River, a tributary of the Balsas River, on which there is an immense water power. A railroad is now in process of construction from the Inguaran Mines, to a point on the Grand Pacific Line, near where that road crosses the Balsas River. This will give the mines transportation with a connection both to the Pacific Coast and to the City of Mexico. It is understood that the Inguaran Mines will be operated under practically the same management as the Boleo Mines in Lower California, which have practically the same ownership.

COAL TRADE REVIEW

New York. Mar. 2.

Anthracite.

The coldest weather of the winter at seaboard ports, followed by heavy snows inland, has resulted in a lot of anthracite going up the chimney, but the enforced consumption hasn't affected wholesale prices any. Sellers are more in evidence than buyers and the average coal man is hoping for an old-fashioned blustering March that will necessitate liberal buying by householders. There is coal enough at the head of the Lakes to last till navigation opens. In Chicago territory business continues on about the same lines as for several weeks, though, if anything, a little better market prevails.

In the East the movement of coal has been hampered by cold weather and storms, but there is little demand from points beyond Cape Cod. Business along the railroads has been fair. The steam sizes continue in great demand and are very hard to get. The slump in soft coal prices at tidewater has not affected them in the least. The collieries are restricting output, and nothing but cold weather can put activity into the market. In view of this condition it is likely that the collieries will not care to make any great concessions to the miners in case higher wages are demanded this spring, and it is possible that the miners themselves will see that a strike is likely to be a prolonged and costly affair with little gain for either side at the end. We continue to quote free burning anthracite at New York as follows: Broken, $3.25; egg, $3.65; stove, $4; nut, $4; pea, $3; buckwheat, $2.25.

Notes of the Week.

The Lehigh Valley Coal Company makes the following statement for January and the two months of the fiscal year from December 1st to January 31st:

	January.	Year.
Earnings	$1,672 231	$3,498,299
Expenses	1,696,872	3,506,730
Loss	$24,641	$8,431

For the two months there was an increase of $79,378, or 2.3% in earnings, and a decrease of $23,809, or 0.6%, in expenses; the result being a reduction of $103,188, or 92.1%, in the net loss.

The report of the Philadelphia & Reading Coal and Iron Company for January and the seven months of the fiscal year from July 1st to January 31st gives the following figures:

	January.	Year.
Earnings	$2,225,162	$18 882,094
Expenses	1,943,297	17,085.097
Net	$281,865	$1,796,097

For the seven months there was an increase of $4,288,368, or 29.4%, in earnings, and an increase of $3,489,735, or 25.7%, in expenses, leaving a gain of $798,633, or 80%, in net earnings.

Bituminous.

Producers are kept pretty busy filling contract orders; in fact, are not able to fill orders fast enough, partly because the railroads from mines to tide are blockaded.

At tide water there is a lot of speculative coal that is being sold at all sorts of figures; $2.05 at South Amboy is a common price, and dealers who bought, expecting to sell at $3.50 cannot get out at $2.25. Speculative dealers at Boston are reported badly caught. The railroads rushed a lot of coal through to the shipping ports and put cars on demurrage. The other cars are hung up along the lines, partly on account of storms, partly because of very cold weather that rendered the engines unable to haul as much as ordinarily. The result is that while speculative buyers have more coal at tidewater than they know what to do with, the real producers haven't enough to supply contracts and are in a bad position again.

No new contracts are reported for the coming season; both sides seem willing to wait awhile. The mining rate in the Georges Creek region has been advanced 10c. from April 1st. The new rate, 55c., will be the highest that has prevailed in 18 years.

Demand in the far East has fallen off, and it is less at Long Island Sound points also, though contract orders are numerous enough. New York Harbor shows a good demand and the all-rail trade holds up.

Transportation from mines to tide has been at a standstill owing largely to snow about the mines. Car supply on two days this week was nil in some districts and on the other days it was very poor. The orders and inquiries for export coal that are given so much space in the daily press are regarded in the trade as of great prospective value in case consumers try to cut prices.

In the seaboard vessel market, vessels are in fair supply, demand is small and ocean freights are weak. Rates from Philadelphia to Boston are expected to be $1.50 the coming week.

Birmingham, Ala. Feb. 26.

(From Our Special Correspondent.)

There is no abatement in the coal business in Alabama, and no indications of an abatement in the near future. The mines are working hard and the product is being shipped away from the district rapidly. A good price is being obtained also for the coal. The statement was made here last week that a big order for the product for export was refused by one of the larger producing companies, but there is no corroboration openly given. It is true, however, that the Tennessee Coal, Iron and Railroad Company has been forced to purchase coal from smaller companies in order to fill their orders. The Brilliant mines in Marion County have been shipping quite a lot of coal to New Orleans under an order accepted from the Tennessee Company. This coal was shipped via rail to New Orleans and went down to avert the famine which was threatened in that city.

The shipment of coal by the barge line on the Mississippi River continues steadily. The Walker County mines, which supply the coal for this route are working hard, and the output is very heavy. The several new mines which went into operation since the first of the present year are working up their outputs right along.

Chicago. Feb. 7.

(From Our Special Correspondent.)

Anthracite Coal.—There has been a steady absorption of anthracite coal during the week; no very large sales have been made, but quite a good aggregate. We have been having a run of zero weather for a week or so, and it is to this fact that the market owes its strength. Chestnut coal still is in limited supply, with large

demand. Prices according to circular are: Egg and stove, $5.75; chestnut, $6.

Bituminous coal.—Soft coal has been bought very freely during the week, manufacturing plants and the railroads still figuring largely in the transactions. Some of the buying now is doubtless in anticipation of the increased prices that go into effect April 1st, through advance in mining rates. The better grades of soft coal for domestic purposes still have a large call.

Coke is still scarce, the demand being larger than the supply and prices very firm.

Pittsburg. Feb. 28.

(From Our Special Correspondent.)

Coal.—There is but little new in the coal situation. The ice in the rivers prevented any shipment to the Southern ports, but the mines were kept in steady operation and fully 12,000,000 bus. are loaded and ready to go out. No announcement of a change in prices has yet been made, but much higher rates are certain to go into effect after April 1st. The Pittsburg Coal Company, the railroad coal combination, has made another valuable acquisition. All the mining property of Martin Mullen, of the Cuddy-Mullen Coal Company, in this district was purchased, the consideration being $365,000. Mr. Mullen refused to sell when the combination was formed and negotiations for his property have been pending ever since.

Connellsville Coke.—The coke production continues to climb and record breaking is a weekly occurrence. The shipments last week almost touched the 12,000 car mark and the production almost reached 220,000 tons. The car supply was a little better last week, but more coke could have been shipped if the transportation facilities had been greater. There were 19,633 active ovens and 441 idle. The estimated production was 217,518 tons and the shipments aggregated 11,669 cars distributed as follows: To Pittsburg and river tipples, 3,327 cars; to points west of Pittsburg, 6,216 cars; to points east of Connellsville, 2,126 cars. Prices are firmer than for many years. No distinction is made between furnace and foundry coke as to prices. Contracts are being made at prices ranging from $3 to $3.50. Some urgent orders were filled during the week and $4 a ton was paid for prompt shipment.

SLATE TRADE REVIEW.

New York. Mar. 2.

The list of prices per square for No. 1 slate, standard brand f. o. b. at quaries in carload lots, is given below:

Prices of Roofing Slate.

Size, inches	Monson or Brownsville.	Bangor.	Bangor Ribbon.	Alb'n. or Jackson Bangor.	Lehigh.	Peach Bottom.	Sea Gr'n.	Unfad'g Green.	Red.
	$	$	$	$	$	$	$	$	$
24 x 14	6.10	3.50	3.00	3.25	3.10	5.10	3.15		
24 x 12	6.60	3.50	3.00	3.25	3.10	5.25	3.15	3.75	
22 x 12	6.60	3.50	3.25	3.50	3 25	5.25	3.15	3.75	
22 x 11	6.50	3.75	3.25	3.50	3.25	5.25	3.15	4.00	
20 x 12	6 90	3.75		3 50	3.25	5.25	3.15	3.75	
20 x 11	6.80			3.75	3.50	5.25	3.15		
20 x 10	6.80	4.50	3.50	3.75	3.50	5.35	3.15	4.25	11.00
18 x 12	6.80	3.75		3.50	3.25	5.25	3.15	3.50	
18 x 11	7.00						3.15	3.75	
18 x 10	7.20	4.50	3.50	3.75	3.50	5.35	3.15	4.00	11.00
18 x 9	7.10	4.50	3.50	3.75	3.50	5.35	3 15	4.25	11.00
16 x 12	6.80	3.75		3.50	3.50		2.95	3.50	
16 x 10	7.10	4.25	3.50	3.75	3.50	5 25	2.95	4.00	11.00
16 x 9	7.00	4.25		3.75		5.35	2.95	4.25	11.00
16 x 8	7.20	4 50	3.50	3.75	3.10	5.35	2.95	4 25	11.00
14 x 10	6 60	3.75	3.25	3.25		5 25	2.85	3.75	11.00
14 x 9	6.50						2.85	3 75	11.00
14 x 8	6 60	3.75	3.25	3.25	3.10	5.10	2.85	4.25	11.00
14 x 7	6.40	3.75	3.25	3.25	3.10	5.10	2.60	4.25	11.00
12 x 10	5.80						2.60	3.25	
12 x 9	5.60						2.60	3.25	
12 x 8	5.50	3.50		3.00	2.80	4 85	2.60	3.50	9.50
12 x 7	5.00	3.25		3.00	2.80	4.85	2.50	3.50	9.50
12 x 6	4.80	3.25		3 00	2.80	4.75	2.50	3 50	9.50

A square of slate is 100 sq ft. as laid on the roof

In Brownville and Monson delivery quotations can be had somewhat lower than above, which is also true of other brands. No. 1 Bangor are 50c. extra when full 3-16 in.

Demand is limited, especially for roofing slate, owing to the continued frosty weather. Mill stock is meeting with fair buying, but makers are booking some good orders for future delivery.

The shipments of slate from Slatington and Walnutport, Pa., were as below:

	Feb. 1-22.	Jan. 1-22.	Changes.
Roofing, sqs	5,107	5,228	I. 121
School, cases	1,102	776	D. 326
Blackboards, crates	755	1,072	I. 317

Slightly better deliveries of roofing slate are noted over January, and blackboards continue to move in a larger way. These deliveries, however, are mainly on old orders. Quotations for blackboards are 12c. per sq. ft. for 3 sq. ft.; 13c. for 3½ ft., and 14c. for 4 ft.

The distribution of the slate exported through New York in January, as compiled by us, is as follows: United Kingdom, $30,665; Australasia, $10,937; Denmark, $518; Norway, $468; Belgium, $700; Holland, $125; Germany, $100; Africa, $30; South America, $755; Central America, Mexico and the West Indies, $585; Canada, $55; total, $44,938, as against $48,224 in January, 1899, and $86,480 in 1898. The total shipments of roofing slate in January, this year, amounted to 8,700 squares, showing an increase of 255 squares, as compared with 1899. The movement to Great Britain aggregated 5,950 squares, as against 8,050 squares in January, 1899. Australasia received 2,550 squares, against 455 squares last year, showing an increase of 2,095 squares. The other countries to import roofing slate were Denmark, Germany and the West Indies. The manufactured stock exported in January amounted to $3,223, as against $5,669 last year, showing a decrease of $2,446. These shipments were chiefly of school slates, though some slab slate, such as billiard boards and the like, were sent to Belgium. Central and South America and the West Indies bought fair quantities of school slates, and a little roofing slate went to Trinidad.

IRON MARKET REVIEW.

NEW YORK. Mar. 3, 1900.

Pig Iron Production and Furnaces in Blast.

Fuel used	Week ending Mar. 3, 1899. F'ces.	Tons.	Week ending Mar. 2, 1900. F'ces.	Tons.	From Jan., '99. Tons.	From Jan., '00. Tons.
An' racite & Coke.	175	224,950	264	291,825	2,079,909	2,527,543
Charcoal.	16	4,625	32	8,125	48,017	69,917
Totals..	191	229.575	296	299,950	2,125,926	2,597,46

The iron market still retains many of the characteristics of a waiting market. In raw material transactions have been comparatively light, the most important noted being sales of about 30,000 tons of Bessemer pig, in Pittsburg, at $25, Valley furnace. In foundry iron transactions have been comparatively light, but some demand is reported for gray forge. Negotiations for some heavy lots of steel billets are reported, but nothing has been completed so far. In the Pittsburg District the mills are hesitating about making contracts for anything beyond July 1st.

In finished material there is some improvement in demand—several large contracts are under negotiation in New York and Philadelphia, and it is understood that inquiries have been made about the material for the Rapid Transit tunnel. An advance of 25c. a keg on steel nails of all classes is announced, taking effect March 1st.

Inquiries for export business continue, and it is believed that a large tonnage of structural material for export can be placed, if deliveries can be made to suit. An order for pipe for Mexico has been placed, and there is a contract for plates and steel shapes pending for Japan. It is understood that some of the Southern furnaces have been asked to bid on large quantities of foundry iron, and basic pig for shipment to Germany, later in the year.

Birmingham, Ala. Feb. 26.

(From Our Special Correspondent.)

There is but little new in the pig iron market in Alabama to report this week. Shipments are holding their own, and the market is firm and steady as to quotations. The furnaces are working steadily and are making large outputs. The demand is steady, though the orders are coming in in small lots. The furnace men hereabouts feel confident that the market is going to keep up, and all the iron that can be made will find a ready sale. The supply of raw material is being strengthened up some, and but few fears prevail now from that source. The Sloss-Sheffield Steel and Iron Company has started work, reopening an old ore mine near Sloss, Ala., and considerable red ore will be secured there. The supply of brown ore and of coal and coke is being increased also. The furnace men say that this is the only danger in this district, and it is being protected as rapidly as possible.

The quotations are given as follows: No. 1 foundry, $18.50; No. 2 foundry, $17.50@$17.75; No. 3 foundry, $16.50@$17; No. 4 founrdy, $16@$16.25; gray forge, $16; No. 1 soft, $18.50; No. 2 soft, $17.50.

The rolling mills are losing no time in their daily operation, and the shipments of finished iron and steel are quite large. The Bessemer mills will shortly be in condition to commence operation. These mills have been purchased by the Tennessee Coal, Iron and Railroad Company, and steel will be worked there to a great extent. The foundries and machine shops in the Birmingham District are still quite busy and are enjooying a healthy trade.

Chicago. Feb. 27.

(From Our Special Correspondent.)

Pig Iron.—The market for pig iron has been rather quiet during the week. Sales of 100 ton lots are the rule, while few higher are reported. Business went mostly to the Southern furnaces. Some of the lesser Southern furnaces are continuing to cut prices, but the larger Southern producers as well as the Northern are maintaining circular quotations. Foundries were never busier, but they lack full supply of pig iron, the furnaces not being able to keep up with consumption. Prices are as follows: Lake Superior charcoal, $25.50@$26; local coke foundry No. 1, $24.50@$25; foundry No. 2, $23.50@$24; foundry No. 3, $22.50@$23; local Scotch, No. 1, $25@$25.50; Ohio strong softeners No. 1, $24.50@$25; Southern silvery, according to silicon, $25.50@$27; Southern coke, No. 1, $22.85@$23.50; No. 2, $21.85@$22.50; No. 3, $20.85@$21.50; Southern No. 1 soft, $22.85@$23.35; No. 2 soft, $21.85@$22,85; malleable Bessemer, $25@$26; Alabama car wheel, $24.85@$25.75.

Cleveland, O. Mar. 1.

(From Our Special Correspondent.)

Iron Ore.—The energies of ore shippers, vessel men and dock managers alike are now being concentrated on an effort to secure an early opening of navigation, and to be fully prepared for it should it be possible of securance. In a year like the present, when every favorable influence will be enlisted in the effort to bring down from the Lake Superior District every ton of ore possible, an early opening of navigation cuts considerable of a figure. Last year it was well into May before the ore boats got to moving freely from the Lake Superior ports, and then there were vexatious delays caused by the blockade at Buffalo, owing to the strike of grain unloaders. It would seem as if this season would see an improvement. Most of the boats will not follow their usual custom of taking two or three cargoes of grain as a preliminary, but will enter the ore trade at once, and it now looks as if some of these vessels might be enabled to start down with the first cargoes of ore by the middle of April. The stock piles at both ends of the line will be in good shape for this early commencement of activity. The reports received at the offices of the operating companies in this city show that things have been kept moving at the underground mines all winter. There have been few suspensions from any cause, and as a result there will be more ore on the loading docks at the opening of navigation, early though it be, than on any previous year. On the other hand, the docks at Lake Erie ports will be well cleaned up for the receipt of the new supply. There has been a good movement forward to furnaces all winter. This has been interferred with only occasionally by cold weather, as, for instance, during the past week, and the docks are even now well cleared off. Both the sales and transportation markets have been quiet this week. In the former the only transaction of consequence was the purchase outright of two ore carrying boats by Rogers, Brown & Company. Sales have amounted to no more than might be expected in the average week at this season of the year. The most recent sales were made at prices approximately as follows: No. 1 Specular and magnetic, Bessemer, $6@$6.50; No. 1 Specular and magnetic, non-Bessemer, $5@$5.25; Red Hematite, Bessemer, quality, $5.25@$5.50; Red Hematite, non-Bessemer, $4@$4.50. Vessel charters to carry ore are made (on season contracts) as follows: From the head of the lakes, $1.25; from Marquette, $1.10; from Escanaba, $1.

Pig Iron.—The past week has not turned out very much better than the one which preceeded it, in so far as sales are concerned. At least a third of the foundry men are unprovided with raw material for operations during the second quarter of the year, and the season is rapidly approaching when far-sighted buyers usually cover their requirements for the third quarter. The Bessemer market is in a waiting condition. There is no iron on the market for delivery before the third quarter, and consumers do not appear to be quite ready as yet to talk prices for that delivery. A few consumers of certain grades of pig iron who are in need of supplementary supplies for early or immediate delivery are reaping the benefit of the conditions which brought a number of furnaces into blast after the bulk of the contracts had been closed for iron for the first half. Some of these furnaces are already negotiating for the sale of their product for the second and third quarters as an entirety, but almost all of them have their product from day to day on their hands, and they are offering some inducements in the matter of prices to have it moved quickly. The car situation continues in the improved condition, but the scarcity of coke is as much of a problem as ever for some furnaces. We quote prices in the valley: Bessemer, $24; No. 1 foundry, $23; No. 2 foundry, $22.50; gray forge, $21.50; Lake Superior charcoal on Lake Erie docks, $25.50.

Scrap.—Another waiting week tells the story. Buying is only fair, and it is not keeping pace with the supply, although the latter has been curtailed somewhat. The last sales were made at No. 1 wrought, $22; No. 1 cast, $16.25; steel melting stock, $21; car wheels, $23.50; turnings, $13; borings, $11.50.

Philadelphia. March 1.

(From Our Special Correspondent.)

Pig Iron.—Buyers of pig iron are purchasing even less than last week. There are rumors to-

day that considerable iron has been purchased at concessions, but these have little foundation. There are negotiations for considerable quantity of foundry and forge iron. No. 1 foundry is quoted at $24@$25; No. 2, $22.75@$23.50; gray forge, $20@$20.75. There has been some business in basic and there are inquiries for Bessemer.

Muck Bars.—Quotations are $30@$30.25, and offers at something less.

Billets.—Some small lots have been sold, it is said, at a concession.

Merchant Iron.—Nearly all the Eastern Pennsylvania mills are quite busy. There is a good deal of inquiry just now for steel bars for very early delivery.

Sheet Iron.—The situation of sheet iron has made prices very strong and only a small amount of business is reported.

Plate.—A good deal of business is likely to be done during the next two or three weeks in plate. Some of the orders will be very large. Quotations are about the same, although it is said that on one order for shells a shading was made. It was rumored the price was 2.30c. Flange iron is quoted at 2.65c. to 2.80c.

Structural Material.—A very good demand in a small way is coming in. Contractors and builders are placing orders for supplies for the second quarter of the year for construction purposes.

Old Iron Rails.—One or two lots have changed hands since Monday at $26.

Scrap.—Prices are entirely too high. There are plenty of buyers, but they are holding off for better terms. Railroad scrap is $23.25; cast borings weak at $13@$14; old car wheels, $22@$23; iron axles, $26. Heavy steel scrap is badly wanted; asking price, $21.50.

Pittsburg, Pa. Feb. 28.

(From Our Special Correspondent.)

The heavy demand for Bessemer pig iron continues and higher prices before the close of the first quarter is among the probabilities. It is all for delivery during the next three months. About half of this iron was contracted for by a leading steel concern of this city. Some of it is destined for the Eastern market and some will go to Western mills. All the iron and steel mills in this section are being operated to their fullest capacity and new orders are coming in daily. There are no particularly new features in the finished material situation. Prices remain unchanged and are likely to continue as at present for several months. There does not seem to be any buying beyond July 1st, and no one is willing to make any prophecy as to what conditions will exist after the close of the first half of the year. No steel of any consequence is being sold, and it would be difficult to give the actual price. There is only a fair demand for plates and prices are the same as last week. The demand for structural material is increasing and indications are that some heavy orders will be placed before spring. The demand for pipe is larger than at any time within the past three months. Beginning to-morrow, the National Tube Company will enforce the new prices adopted several weeks ago. By the new rates the inequality that has existed between the discounts on black pipe and that of galvanized pipe is corrected. The National Tube Company this week received an order for 40 miles of pipe ranging in size from 3 to 18 in. for the water works company at Guadalajara, Mex. The new prices of wire nails also become effective to-morrow. The rates are advanced 25c. a keg. The new schedule is as follows :To jobbers in car load lots, $3.45; in less than car load lots, $3.47½; to retailers in car load lots, $3.60; in less than car load lots, $3.70. There has been some heavy buying of wire nails in anticipation of an advance. A meeting of the American Steel Sheet Company, the combination of 155 sheet mills of the country, was held here to-day to arrange some of the details of the consolidation. A New Jersey charter is to be secured and it is expected that the new company will be doing business before April 1st.

Pig Iron.—Sales of Bessemer pig iron aggregating 30,000 tons are reported this week at $24, Valley furnaces, which means $24.90 delivered in Pittsburg. It was all for delivery within the next three months. Bessemer pig iron in small lots is quoted at $25@$25.25, Pittsburg. The demand for foundry iron is good, but little buying is being done for future delivery. No. 2 is quoted at $23@$23.25, and gray forge at $21, Pittsburg.

Steel.—Bessemer steel billets are still quoted at $35, but it is believed this price would be shaded for a desirable order. Sheet bars are quoted at $36 at the mill. The plate market is unchanged, but the demand is reported good. Tank plates are quoted at 2.20@2.25.

Sheets.—Since the success of the combination was assured, prices have advanced fully $4 a ton. Minimum price quoted for Nos. 27 and 28 gauge is 3.20c. and no orders are taken for delivery beyond April 1st. It is believed that rates will soon be further advanced and may be quoted after the first of next month at 3.50c.

Ferro-manganese.— The demand continues about the same and $125 is quoted for 80% domestic.

New York. Mar. 2.

The local market shows a very fair volume of business in finished products. In foreign trade we note a recent shipment of locomotives to Japan valued at $63,000 and another to England valued at $75,000; shipments of $50,000 worth of steel rails and $15,000 worth of iron pipe to South Africa; of $23,500 worth of metal working machinery and tools to Belgium; of $13,000 worth of bridge material, $12,000 worth of railway material and $14,500 worth of spikes to Mexico; and metal working and pumping machinery to France.

Pig Iron.—The market still shows little animation and producers and consumers are still apart, but there is more inquiry about prices for the second half year. We quote for delivery to July, Northern brands, tidewater delivery: No. 1 X foundry, $24.25@$24.75; No. 2, $22.50@$23.25; No. 2 plain, $21.75@$22.25; Southern brands, New York delivery: No. 1 foundry, $22.50@$23; No. 2 foundry, $21.50@$22; No. 1 soft, $21.50@$22.25; No. 2 soft, $20.75@$21.50; No. 3 foundry, $21.50.

Warrant Iron shows fluctuations, but limited dealings. No. 2 Alabama foundry, $17@$16.50; No. 3, $15¼; No. 4, $15; gray forge, $15.

Ferro-manganese and Spiegeleisen.—Ferro is quoted at $125 Pittsburg; spiegel at $45 New York.

Bar Iron and Steel.—Demand shows no change. We quote refined iron at 2.30c. on dock, and common up to 2.15c. Soft steel bars, 2.45c.

Plates.—A new Eastern plant is seeking orders and making concessions and the market is weak. We quote for large lots at tidewater: Tank, ¼-in. and heavier, 2.35c.; tank, 3/16 in., 2.45c.; shell, 2.55c.; flange, 2.65c.; marine, 2.85c.; firebox, 2.85c.; universals, 2.45c

Structural Material—The market is unchanged. We quote beams, 2.45c.; angles, 2.45c.; channels, 2.45c.

Steel Rails and Rail Fastenings.—The local market is quiet, though a few sales have been made for export. We quote for standard sections $35 f. o. b. Eastern mills. Smaller rails are quoted: 12-lb., $39; 16-lb., $39; 20-lb., $39; 30-lb. to 40-lb., $37; 40-lb. to standard, $36, with the usual advance for small orders. We quote angle bars, 2.35c.; fish plates, 2.30c.; spikes, 2.70c.

Nails.—The 25c. advance makes wire nails $3.80 in large lots on dock.

METAL MARKET.

NEW YORK, March 2, 1900.

Gold and Silver.

Gold and Silver Exports and Imports

At all United States ports in January and year.

Metal.	January.		Year.	
	1899.	1900.	1899.	1900.
GOLD.				
Exports	$1,755 451	$5,691,290	$1,755 451	$5,691.290
Imports	6,392,344	1,988,272	6,392,344	1,988,272
Excess	I. $4,636,893	E. $3,703,018	I $4,636,893	I. $3,703,018
SILVER.				
Exports	5.380.806	4 599,199	5,380,806	4,599,199
Imports	3,128,852	2,130,335	3,128,852	2,130,335
Excess	E. $2,251,954	E. $2,468,864	E. $2,251,954	E. $2,468,864

This statement includes the exports and imports at all United States ports, the figures being furnished by the Treasury Department.

Gold and Silver Exports and Imports, New York

For the week ending March 1st, 1900, and for years from January 1st, 1900, 1899, 1898, 1897.

Period	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
We'k	$76,798	$138,418	$721,335	$143,612	E. $516,103
1900..	2,128,688	939,275	6 604,140	622.131	E. 7,071,422
1899..	563,035	3,700,403	5,226,590	336 184	E. 1,553,038
1898..	3,429,886	4,'9 ,681	7,491,635	477,740	E. 6,353,097
1897..	780,681	704,411	6,981,827	394,732	E. 6,661,345

Exports of gold were chiefly to the West Indies; of silver to London. Imports of gold were in small parcels from various ports; those of silver were chiefly from Mexico.

The United States Assay Office in New York reports the total receipts of silver at 93,000 oz. for the week. Total since January 1st, 1,032,000. oz.

Prices of Foreign Coins.

	Bid.	Asked
Mexican dollars	$ .47¾	$ 49
Peruvian soles and Chilean pesos	44	.46
Victoria sovereigns	4.86	4.88
Twenty francs	3.86	4 88
Twenty marks	4.75	4.85
Spanish 25 pesetas	4.78	4 82

Imports and Exports of Metals.

Port.	Week, Feb. 28.		Year 1900.	
	Expts.	Impts.	Expts.	Impts.
***New York.**				
Aluminum.....long tons	.....	12	2	12
Antimony ore... " "	.....	.....	.....	403
" regulus.. " "	.....	160	.....	97
Chrome ore..... " "	.....	.....	.....	.....
Copper, fine ..... " "	3,160	125	16,016	3,394
" matte.. " "	.....	.....	281	.....
" ore. .... " "	.....	.....	.....	440
" ash..... " "	.....	.....	.....	15
Ferro-Chrone... " "	.....	.....	.....	10
Ferro-mangan'se " "	.....	.....	.....	90
Iron ore ..... " "	.....	.....	.....	5,100
" pig, bar, rod " "	.....	1175	1,211	1,001
" pipe..... " "	517	.....	1,740	124
" plates, sheets " "	.....	.....	284	.....
Lead..... " "	2,169	1,600	18,258	8,900
" ore..... " "	.....	.....	.....	2,100
" dross..... " "	.....	.....	24	.....
Manganese, ore.. " "	.....	.....	.....	1,961
Metals, old, scrap " "	17	1372	387	1,640
Composition..... " "	.....	.....	794	.....
Nails..... " "	245	.....	4,686	.....
Nickel " "	12	.....	197	30
" ore, matte " "	.....	12,750	.....	2,821
§Railr'd material " "	68	175	435	603
Rails, old..... " "	.....	286	.....	216
Spiegeleisen..... " "	.....	145	.....	45
Steel bars, plates " "	.....	1282	900	3,307
" rails..... " "	107	.....	6,275	18
" wire..... " "	.....	.....	1,954	.....
" not speci'd. " "	203	161	1,208	607
Tin " "	.....	5	.....	3,998
" dross or ashes " "	.....	.....	3	.....
" and black plates " "	.....	1679	.....	5,827
Zinc..... " "	.....	.....	.....	6
" dross..... " "	.....	.....	132	50
" ashes, skim " "	30	.....	236	10
" ore..... " "	.....	.....	3,531	.....
†Baltimore.				
Antimony regulus...casks	.....	.....	.....	.....
Chrome ore.....long tons	.....	.....	.....	2,930
Copper, fine..... " "	1,370	197	8,238	1,401
" matte... " "	.....	.....	.....	.....
" pipe..... " "	.....	.....	.....	.....
Ferro-manganese " "	.....	.....	.....	.....
Ferro-silicon..... " "	.....	.....	.....	.....
Iron pig, bar, etc. " "	.....	1,520	.....	5,990
" ore..... " "	.....	26,901	.....	112,430
" pyrites..... " "	.....	.....	.....	3,020
Manganese ore.. " "	.....	.....	.....	38,490
Metals, old & Rails " "	251	.....	251	.....
Nails " "	14	.....	527	.....
Pipe, iron & steel " "	73	.....	1,093	.....
Spiegeleisen.. " "	.....	.....	.....	.....
Steel, bars, pl'es.. " "	55	.....	1.237	103
" wire ..... " "	47	.....	284	14
" rails..... " "	.....	.....	14,765	.....
not specified.. " "	.....	.....	.....	.....
Tin " "	.....	.....	.....	66
" and blackplates " "	.....	.....	.....	532
" other..... " "	.....	.....	.....	.....
Zinc..... " "	.....	.....	.....	.....
" dross, skim. " "	.....	.....	.....	.....
" oxide..... " "	.....	.....	.....	.....
***Philadelphia.**				
Antimony. ....long tons	.....	.....	.....	.....
Chrome ore ... " "	.....	.....	.....	.....
Copper, fine..... " "	90	.....	562	.....
" ore..... " "	.....	.....	.....	6,872
" old..... " "	.....	.....	.....	.....
Ferro-manganese " "	.....	.....	.....	.....
Ferro-silicon ... " "	.....	.....	.....	.....
Iron, pig..... ... " "	.....	147	.....	2,124
" ore..... " "	.....	.....	.....	54,880
" pyrites..... " "	.....	.....	.....	.....
Manganese ore.. " "	.....	14,650	.....	11,900
Steel sheets..... " "	.....	.....	.....	.....
Spiegeleisen..... " "	.....	.....	.....	3,500
Tin..... " "	.....	.....	.....	65
" and black plates " "	.....	1187	.....	1,018
Zinc dust ..... " "	.....	.....	.....	.....

Total United States.§§

Articles.	December.		Jan.—Dec.	
	Expts.	Impts.	Expts.	Impts.
Antimony.. ... long tons	...	61	8	1.411
" ore.... " "	...	...	...	1,778
Copper fine ..... " "	15,704	3,110	111 572	31.904
" ore & matte " "	700	10,199	5,219	31,637
Iron, pig & bar.. " "	12,526	8,337	239,891	60,163
" ore..... " "	17,857	113,679	40.680	674,098
Iron& steel plates " "	2,007	1,069	56,981	7,044
Iron & steel rails " "	25.894	...	177,714	2.134
" " wire " "	8,312	116	116,332	2,363
Steel, billets, rods, etc..... " "	2,195	2,534	73,374	30,565
Lead, pigs, bars & old ..... " "	3	6	54	215
Lead in ore, etc. " "	5,005	8.185	66,720	84,442
Manganese ore.. " "	...	17,516	25	188,349
Nicke ore &matte " "	...	...	...	.....
Nails, cut..... " "	217	.....	2,234	.....
" wire ..... " "	991	.....	9,974	.....
Quicksilver.... " "	5,411	.....	33,535	.....
Tin ..... " "	17	.....	564	.....
" &black plates " "	.....	1,354	....	31,807
Zinc ..... " "	51	4,779	302	58.916
" ore ... " "	217	152	6,046	1,331
	2,279	.....	25,197	....

*New York Metal Exchange returns. †By our Special Correspondent. §Not specified Week ending Feb. 23d. §§ Monthly returns. Treasury Department.

Import Duties on Metals.

The duties on metals under the present tariff law are as follows: Antimony, metal or regulus, ¾c. a lb. Lead, 1½c. a lb. on lead in ores; 2½c per lb. on pigs, bars, etc.; 2½c. on sheet, pipe and manufactured forms. Nickel, 6c. per lb. Quicksilver, 7½ per lb. Spelter or zinc, 1½c. per lb in pigs and bars. c2. on sheets, etc. Copper, tin and platinum are free of duty.

Average Prices of Silver per oz. Troy.

Month.	1900. Lond'n Pence.	1900. N. Y. Cents.	1899. Lond'n Pence.	1899. N. Y. Cents.	1898. Lond'n Pence.	1898. N. Y. Cents.
January...	27.30	59.30	27.42	59.36	26.29	56.77
February..	27.49	59.76	27.44	59.42	25.89	56.07
March. ...	.....	.....	27.48	59.64	25.47	54.90
April	.....	.....	27.65	60.10	25.95	56.02
May.....	.....	.....	28.15	61.23	26.31	56.98
June	.....	.....	27 77	60.43	27.0+	58.61
July.....	.....	.....	27.71	60 26	27.32	59.06
August....	.....	....	27.62	60.00	27.48	59.54
September	.....	.....	27.15	58.89	28.05	60.68
October ..	.....	.....	26.70	57.98	27.90	60.42
November	.....	.....	27 02	58.67	27.93	60.60
December.	.....	.....	27.21	58.99	27.45	59.42
Year.....	.....	.....	27.44	59 58	26.76	58.26

The New York prices are per fine ounce ; the London quotation is per standard ounce, .925 fine.

Average Prices of Metals per lb., New York.

Month.	COPPER. 1900.	COPPER. 1899.	TIN. 1900.	TIN. 1899.	LEAD. 1900.	LEAD. 1899.	SPELTER. 1900.	SPELTER. 1899.
Jan.....	16.33	14.75	27.07	22.48	4.68	4.18	4.65	5.34
Feb.....	16.98	18.00	30.58	24.20	4.675	4.49	4.64	6.28
March....	.....	17.54	.....	23.82	...	4.37	.....	6.31
April....	.....	18.43	.....	24.98	.....	4.31	.....	6.67
May.....	.....	18.25	.....	25.76	.....	4.44	.....	6.88
June.....	.....	17.93	.....	25.85	.....	4.43	.....	5.98
July.....	.....	18.33	.....	29.63	.....	4.52	.....	5.82
August..	...	18.50	.....	31.53	.....	4.57	.....	5.65
Sept.....	.....	18.46	.....	32 74	.....	4.58	.....	5.50
October..	.....	17.76	.....	31 99	.....	4 575	.....	5.32
Nov.....	.....	16.93	.....	28.51	.....	4.575	.....	4.64
Dec	.....	16.40	.....	25.88	.....	4.64	... .	4.66
Year.....	.....	17.61	...	25.12	.....	4.47	.....	5.75

The price given in the table is for Lake Copper; for electrolytic copper the average for January, 1900. was 15.58c.; for February, 15.78c.

Financial Notes of the Week.

Few or no changes in the general situation are to be noted during the week. Money continues in abundant supply for all legitimate business requirements. The speculative markets are uncertain, and the liquidation consequent on over-speculation in industrials is still in progress.

The silver market has ruled steadier in London, advancing to 27 9/16d. on reported Russian buying for Persian account. The fall in sterling exchange has tended to offset this advance by reducing the equivalent—New York prices.

The statement of the United States Treasury on Wednesday, February 28th, shows balances in excess of outstanding certificates as below, comparison being made with the statements of the corresponding day last week:

	Feb. 21.	Feb. 28.	Changes.
Gold.....	$223,500,450	$232,049,708	I. $8,549 258
Silver	10,052 640	9,123 733	D. 92 ,907
Legal tenders.....	13,281,040	13,138,619	D. 142.421
Treas notes, etc...	2,029,090	1,267,2•6	D. 761,804
Totals	$248,863,220	$255 579,346	I, $6,716,126

Treasury deposits with national banks amounted to $111,751,131, an increase of $141,643 during the week.

The statement of the New York banks—including the 63 banks represented in the Clearing House—for the week ending February 24th, gives the following totals, comparison being made with the corresponding weeks in 1899 and 1898:

	1898.	1899.	1900.
Loans and discounts.	$641,878,400	$771,574,900	$745,455.100
Deposits	729.214.300	910,573,600	826,866,600
Circulation.....	13,727,700	14,516.300	17,971,500
Reserve:			
Specie	119,186,500	202,658,300	162,684.900
Legal tenders	86,076,400	55,320,000	63,710,300
Total reserve.....	$205,262.900	$257,978,300	$226,395.200
Legal requirements...	182,303,575	227,643,400	206,716,650
Balance, surplus....	$22,959,325	$30,324,900	$19,678,550

Changes for the week, this year, were increases of $11,035,900 in loans and discounts; $5,848,500 in deposits, and $674,000 in circulation; decreases of $1,048,600 in specie, $1,826,400 in legal tenders, and $4,337,125 in surplus reserve.

The following table shows the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars and comparison is made with the holdings at the corresponding date last year:

Banks.	1899. Gold.	1899. Silver.	1900. Gold.	1900. Silver.
N.Y. Ass'd..	$202,658,300	.....	$162,684,900	.....
England....	170,314,255	.....	178,644,885	.....
France.. ...	365,264.280	$240,245,355	384,091,640	$228,736,925
Germany...	149,645,000	77,090.000	141.065,000	72,670,000
Spain..	55,780,000	46,025.000	68,015,000	74,170,000
Aus.-Hun ..	149.120.000	51,960,000	189 200,000	45,345,000
Neth'l'ds....	21,565,000	34.160,000	26,170.000	30,020,000
Belgium....	15,865 000	7,935,000	14 555.000	7,275,000
Italy	78,055,000	11.860,000	77 000,000	7,765.000
Russia	499,865,000	22,240,000	416,820,000	29,345,000

The returns of the Associated Banks of New York are of date February 24th, and the others are of date of February 22d, as reported by the "Commercial and Financial Chronicle" cable. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England reports gold only.

Other Metals.

Daily Prices of Metals in New York.

Feb.-Mar.	Sterling Exchange.	Silver. Fine oz. Cts.	Silver. London. P'nce	Copper. Lake cts. ℔ lb.	Copper. Elec-trolytic. ℔ lb.	Copper. Lond'n stand-ard £ ℔ ton.	Tin, cts ℔ lb.	Lead cts. ℔ lb.	Spel-ter, cts. ℔ lb.
24	4.87¼	59⅝	27⅞	16⅞	15⅝	.....	31¾	4.67½	4.65
26	4.87	59⅜	27⅛	16⅛	15⅛	74 10 0	32¼	4.67½	4.60
27	4.87	59⅜	27⅛	16⅛	15⅞	74 5 0	32½	4.67½	4.60
28	4.86⅝	59⅜	27⅛	16⅛	15⅞	74 15 0	32⅝	4.67½	4.60
1	4.86¾	59⅞	27⅝	16⅛	15⅞	75 0 0	33	4.67½	4.60
2	4.86¾	59⅝	27⅛	16⅛	15⅞	75 0 0	33⅛	4.67½	4 60

The quotations given for electrolytic copper are for cakes, ingots and wirebars; the price of electrolytic cathodes is usually 0.25c. lower than these figures.

Copper.—The market, though quiet, displays fair strength. Indications are that the demand would require but a slight stimulus to bring about higher values, for as far as can be gathered the quantities available for this and next month are very light. Consumption keeps up remarkably well, especially abroad, while production does not appear to increase as quickly as was anticipated. We quote Lake, 16@16¼c.; electrolytic in cakes, bars or ingots, at 15⅞@16c.; and electrolytic copper in cathodes at 15⅝@15¾c.

The London market early in the week declined to £74 5s., but by Thursday recovered to £75, closing to-day at £75@£75 2s. 6d. for spot, and £1 10s. less for three months.

At one time the backwardation for three months' copper amounted to £1 10s. Refined and manufactured sorts are quoted as follows: English tough, £76; best selected, £76 10s.; strong sheets, £83; India sheets, £81; yellow metal, 6¾d.

The statistics for the second half of the month show an increase of 200 tons.

Tin.—The fluctuations this week have not been quite so wide as during those preceding. The market now, especially for spot delivery, is higher than for some time past, the quotation being 33c. Future deliveries, however, are entirely neglected and quoted at a discount of from 1@1½c.

In London the opening quotation on Monday was £146, from which there was a decline to £144 5s., but the market closes to-day at £147 15s.@£147 17s. 6d. for spot, and £8 5s. less for three months.

Imports of tin into the United States in January were: From the East Indies, 2,320,790 lbs.; Australia, 11,200 lbs.; Great Britain and Holland, 4,211,776 lbs.; other countries, 111,508 lbs.; total, 6,655,274 lbs., against 6,244,921 lbs. in 1899. This shows an increase of 410,353 lbs., or 6.6%, this year.

Exports of tin from the Straits Settlements for the year ending December 31st are reported as follows, in long tons of 2,240 lbs.:

To	1897.	1898.	1899.
United States.....	19,483	22,901	20,781
Europe	22,064	21,599	23,720
China and India.....	3,214	2,551	1,484
Totals	44,761	47,051	45,985

The exports last year were less by 1,066 tons, or 2.3%, than in 1898; but were greater by 1,224 tons, or 2.7%, than in 1897.

Visible supplies of tin on March 1st were as follows, in long tons of 2,240 lbs.:

	Store.	Afloat.	Totals.
London.....	5,840	2.290	8.130
Holland	1,737	1,332	3,069
U. S., exc. Pacific ports...	1,594	3,960	5 554
Totals.....	9,171	7,582	16,753

This shows a decrease of 1,385 tons, or 7.7%, from February 1st, and a decrease of 3,877 tons, or 18.8%, as compared with March 1st, 1899.

Lead remains quiet at 4.65@4.70c. at New York and 4.55@4.60c. at St. Louis.

The foreign quotations are somewhat lower, Spanish being quoted at £16 10s. and English at £16 12s. 6d.

Imports of lead in various forms and exports of foreign lead in January are reported by the Treasury Department as below, in pounds:

	1899.	1900.
Lead in ores.....	24,925,720	9,712,562
Lead, metallic.....	159	24,782
Total imports.....	24,925,879	9,637,344
Exports of foreign lead.....	12,565,092	10,600,187
Balance imported	72,360,787	
Balance exported.....		762,834

Of the lead imported in ores this year, 8,598,266 lbs. (89.2%) were from Mexico; 647,730 lbs. (6.7%) from Canada, and the balance from other countries. The exports this year exceeded the imports.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us that lead is firm but very dull. Prices continue to range from 4.57½ to 4.65c., according to brand and delivery. Trading is of a retail character only.

Spelter remains very dull and neglected, so far as the domestic market is concerned. The increased activity in the demand, so long looked for, is not yet apparent. We quote, New York 4.60@4.65c., and St. Louis 4.45@4.50c.

The foreign market, however, has improved materially, and it is thought exports are likely to be resumed on a larger scale. In that event, prices need not suffer any further, at least not for the time being.

The stocks of spelter on hand at present are reported to be very large. They have been accumulating of late so fast that several of the smelters in the West have closed down until the demand shall catch up with the production.

Exports of spelter or metallic zinc from the United States in January were 2,456,110 lbs., against 2,868,217 lbs. in January, 1899; a decrease of 412,107 lbs., or 14.3%. Exports of zinc ore were 2,259 tons, against 1,464 tons in 1899; an increase of 795 tons, or 53.2%, this year.

Antimony.—No change. Cookson's, 10½@11c.; Hallett's, 9¾@9⅞c.; U. S. Star, 9½@9⅝c.

Nickel continues firm and demand very brisk. Quotations are firm at 40 and 45c., according to size of order.

Platinum.—Demand is good, and prices are firmer. In large lots we quote $17.75, and for smaller quantities, $18 per oz., in New York.

For chemical ware (crucibles and dishes), best hammered metal, we quote as follows: In lots of 250 grams or more, 67½c. per gram, and for smaller quantities, 70c. per gram; unmanufactured platinum will be supplied in same quantities at 2c. less per gram.

Quicksilver.—Quotations remain unchanged at $51 per flask for large lots, New York. For small orders the prices are $52.50@$54. The London price continues at £9 12s. 6d., with the same figure named from second hands.

San Francisco quotations are $51.50@$52 per flask for local deliveries, and $46.50@$47 for export.

Imports of quicksilver into Great Britain in January were 40,388 lbs. (45,150 lbs., 1899). Exports were 142,275 lbs. (308,615 lbs., 1899); showing 101,887 lbs. drawn from stocks this year, against 263,465 lbs. last year.

Exports of quicksilver from all United States ports in January were 60,901 lbs., against 69,706 lbs. in January, 1899; a decrease of 8,805 lbs., or 12.6%, this year.

The Minor Metals.—Quotations are given below for New York delivery:

Aluminum.	Per lb.		Per lb
No. 1, 99% ingots..	33@37c.	Bismuth.....	...$1.70
No. 2, 90% ingots..	31@34c.	Magnesium.....	$2.75@$3
Rolled sheets.	42c up	Phosphorus ..	....40@50c.
Alum.-bronze.....	20@23c.	Tungsten..	70c.
Nickel-alum.....	33@39c	Ferro-tungsten, 60%.....	60c.

Variations in price depend chiefly on the size of the order.

LATE NEWS.

It is reported that negotiations are in progress for 500,000 tons of coal for the Russian Government. The coal is to be delivered at Baltic ports during 1900. The Berwind-White Coal Company, it is said, is the party to the negotiations here.

The total value of exports of iron and steel and their manufactures from the United States in January was $10,210,045, against $7,347,042 in January, 1899; showing an increase of $2,863,003, or 39%. There was a decrease in almost all the items of raw iron and steel, but a considerable increase in machinery. By far the greater part of the gain shown was, however, due to the higher values reported this year.

The granite workers in New England went on strike March 1st and all the granite quarries are closed down in Connecticut, Rhode Island, Massachusetts, New Hampshire, Vermont and Maine. Negotiations for a compromise have been going on for some time, but without success. The granite cutters demand an eight-hour day and wages of $3 a day. Both the cutters and the quarry operators are well organized.

Juab County, Utah.

(From Our Special Correspondent.)

Tintic Shipments.—In the week ending February 24th there were sent forward, from the 3 railroad points of the district, 90 cars of ore and 2 cars of concentrates, credited as follows: Centennial-Eureka, 26 cars; Gemini, 11 cars; Grand Central, 8 cars; South Swansea, 8 cars; Swansea, 7 cars; Bullion-Beck, 5 cars; Humbug & Uncle Sam, 5 cars; Mammoth, 4 cars ore, 2 cars concentrates; Ajax, 4 cars; Carisa, 3 cars; Godiva, 3 cars; May Day, 3 cars; Sorensen & Hughes, 2 cars; Sunbeam, 1 car.

Eureka Hill.—On February 21st the shareowners determined to extend the corporation's life another 25 years, and elected the following directors: Messrs. Moylan C. Fox, Robert Harkness, Henry A. Whitney and John Q. Packard. Afterward Mr. Fox was made president-manager, Mr. Harkness vice-president, and Mr. Geo. W. Riter secretary. A more energetic campaign may soon start and the mill again go in commission.

CHEMICALS AND MINERALS.

(For further prices of chemicals, minerals and rare elements, see page 290.)

New York. March 2.

Heavy Chemicals.—Large orders for 1901 delivery of domestic high test alkali are noted at 82½c. per 100 lbs. in bags, f. o. b. works, and of caustic soda at $1.85 f. o. b. works. Immediate shipments of these goods are hard to make, owing to limited stock in makers' hands, and advanced prices are asked. Some sales of high test caustic soda have been made for October-December delivery at about $2 per 100 lbs. f. o. b. works, and of alkali at 90c. f. o. b. works. Foreign alkali sold at 87½c. ex-dock, while quotations as below are asked for arrivals. Foreign caustic soda is firm. Sal soda shows heavy business, especially for domestic makes. Bicarb. soda finds a good spring demand, and some export inquiry. Bleaching powder of prime English make is limited in supply, and importers are practically sold up for some weeks to come, leaving jobbers in control of the transient market. Other makes of bleach find a ready sale around $2.25 per 100 lbs. on spot in moderate lots. Chlorate of potash, owing to an increasing demand, apparently for consumption, is stronger. It is intimated that the world's consumption this year will exceed that of 1899, when the manufacturers of explosives were such large buyers. It is also claimed that the foreign makers hold large orders for delivery over this year. The domestic works are not anxious sellers, except for October-December delivery, which makes it appear as though they were already well sold ahead. Meanwhile prices are tending upward.

Articles.	Domestic.		Foreign.
	F.o.b. Works.	In New York	In New York.
Alkali. 58%.	85@90	95@1.10	$.92½@97½
" 48%.	90@95	1.00@1.15	1.02½@1.07½
Caustic Soda, high test	$2.12½@2 25	$2.37½@2.50	$2.50@2.60
powd. 60%	.....	2.75@2.87½	.....
70@74%.	.....	3.00@3.25	.....
98%.	.....	3 67½@4.00	3.75@4.00
Sal Soda	70@80.	.....	67½@72½
" conc.	1.15@1.75	.....	1.60@1.65
Bicarb Soda..	1.25@1.37½	.....	1.75@2.00
" " extra	3.25@3.50	.....	.....
Bleach. Pdr., Eng. prime..	.....	.....	2.50@2 75
other br'nds.	.....	.....	2 25@2.50
Chl. Pot cryst	.....	9.50@9.75	10.00@10.50
" powd.	.....	9.75@10 00	10.25@11.00

Acids.—A good consumptive demand characterizes the market. Muriatic acid stocks are limited, while sulphuric finds larger buying by Eastern mills. Blue vitrol is lower and exports have improved.

Quotations as below are for large lots delivered in New York and vicinity, per 100 lbs. unless otherwise specified.

Acetic, No.8 in lbs.	$1.62½	Nitric, 36°	$3.87½
Blue Vitriol,	4.50@5.00	Nitric, 38°	4.12½
Aqua Fortis, 36°	3 62½	Nitric, 40°	4.37½
Aqua Fortis, 38°	3 87½	Nitric, 42°	4.75
Aqua Fortis, 40°	4.12½	Oxalic	5.75@6.00
Aqua Fortis, 42°	4.50	Sulphuric, 66°	1.20
Muriatic, 18°	1.20	Sulphuric, 60°	1.05
Muriatic, 20°	1.35	" bulk 50° ton	14.00
Muriatic, 22°	1.50	Sulphurous, 100% SO_2 anhydrous.	8.00@10.00

Brimstone.—Demand is moderate. Spot best unmixed seconds are nominal at $21.75@$22 per ton, while shipments are offered at $21.25@$21.50, and thirds, $18.75@$19 per ton.

Pyrites.—An arrival of 4,400 metric tons cupreous pyrites for the Pennsylvania Salt Manufacturing Company is noted at this port. Demand is fair, and prices are unchanged. We quote American pyrites as follows: Mineral City, Va., lump ores, $4.50 per long ton (basis 42%), and fines, $4.20; Charlemont, Mass., lump, $5.50, and fines, $4.75; Pilley's Island, lump, $6.50, and fines, $4.50 per long ton, delivered in New York. Spanish pyrites, 13@15c. per unit, according to percentage of sulphur contents, delivered ex-ship New York and other Atlantic ports. Spanish pyrites contain from 46% to 51% of sulphur; American, 42% to 44%, and Pilley's Island, N. F., 50%.

Fertilizing Chemicals.—Much attention has been given to new contracts for the potash salts, and so far they show an increase over 1899. Sulphate of ammonia, gas liquor sold at $3.07½ per 100 lbs. to arrive, but is now quoted at $3.05. High grade Western blood was bought at $2.20 per unit, f. o. b. Chicago, and tankage at $2, same place. Azotine is firm at $2.40@$2.50 per unit, f. o. b. Chicago. Domestic steamed ground bone brought $21 per ton, and Calcutta bone meal is held $24@$26 per ton. Regular bone black holds at $20@$21 per ton, and dissolved 17@18% at $14.50@$15.75 per ton. Fish scrap wet is nominal at $11.50@$12 per ton, and dry, $20.50@$21.50, f. o. b. factory. The new contract prices for potash salts are as follows, orders to be booked by March 31st: Muriate of potash, 80@85%, basis of 80%, $1.80@$1.83½ per 100 lbs., or 5c. per 100 lbs. more than last year's contracts; sulphate of potash, 90@96%, $2.02½@$2.05½, or 7@7½c. more than last year; double manure salts, 48@53%, $1.04@$1.06½, or an increase of 4@6c.; Kainit, 12.4%, actual potash, $8.80@$9.30 per long ton, or 35@60c. per ton more than last year's contract prices. Quotations are on the basis of foreign invoice weights, tares and analysis to the ports of New York, Boston and Philadelphia, in quantities of not less than 500 tons bulk salts, or 50 tons concentrated salts.

The shipments of guano from Peru in 1899 amounted to 30,795 tons, as against 21,826 tons in 1898, all to Great Britain and Europe. The movement of Damaraland guano in 1899 amounted to 7,862 tons, as against 6,689 tons in 1898, also for Europe and the United Kingdom.

Nitrate of Soda.—The "Coya" arrived with 28,346 bags, but it has not affected the market. Prices are firm as the powder and fertilizer manufacturers are freer purchasers. The consumption this year is expected to be the largest on record, and owing to the high freight rates prices will be well maintained. Nitrate of soda on the spot sold at $1.95 per 100 lbs. April shipments are quoted $1.85; May, $1.77½, and June-December, $1.70.

Phosphates.—Business is quiet, while miners are busy filling hold-over orders. Prices are practically unchanged, although it is claimed some Florida rock people had to buy from neighboring mines at advanced prices, so that they could fill their contract deliveries. The shipments in January thus far reported were as below, comparison being made with 1899 in tons.

Port.	1899.	1900.	Changes.
Fernandina rock	15,397	7,100	D. 8,297
Savannah, "	4.419	8,500	I. 4,081
Tampa, "	5,205	6,032	I. 827
" pebble	14,313	11,046	D. 3,267
Brunswick, rock	3,555	1,719	D. 1,836
Pensacola, "	11,448	16,342	I. 4,894
Beaufort, "	10,264	3,868	D. 6.400
Total tons	64,605	54,607	D, 9.998

The domestic movement in January from these ports were, approximately, 10,914 tons, as against 11,852 tons last year, while the exports were 43,693 tons, as against 52,753 tons in January, 1899, showing that the decreased shipments during the month were due principally to the smaller demand from abroad. The movement from Pensacola, Fla., was credited to Tennessee phosphate rock, all going abroad, while the Beaufort, S. C., shipments were South Carolina rock intended for home consumption. The remainder—34,397 tons—came from Florida, of which only 7,046 tons (pebble) were consumed at home, and Germany taking the largest part of the foreign shipments. The shipments of rock from Hickman County, Tenn., in 1899, are reported at 42,202 tons, the heaviest movement having been in November—7,454 tons—and the smallest in February—368 tons. The movement in January, 1900, from this county over the Nashville, Chattanooga & St. Louis Railway amounted to 2,179 tons, and from Maury County, 1,996 tons, making a total of 4,175 tons for the month, of which 3,914 tons went to the interior and 261 to Atlantic coast ports. The exports of Tennessee rock through Norfolk, Va., in 1899 amounted to 27,359 tons, of which 15,054 went to England, and the balance to Germany, Holland and Belgium. The Gallatin District in Tennessee shipped last year about 550 long tons, only one company having carried on operations.

Ocean freight rates from Florida ports are about as follows: To Baltic ports, $4.80 per ton; Continental, $5.64, and Mediterranean ports, $5.28, while from Savannah, Ga., to the United Kingdom, $3.60 is asked. We quote as follows:

Phosphates.	F. o. b. Am. Shipping Port.	C. i. f. Un'd Kingdom or No Sea Ports.	
		Unit.	Long ton.
*Fla. hard rock (77@80%)	$8.00@8 50	8¼@ 8½d	$12.87@13.25
Fla. land pebble (68@73%)	4.35	7d	9.80
†Fla. Peace River 58@63%	3.75@4.00	6¼@ 6½d	7.50 @ 7.80
†Tenn. rock (78@80%)	3.00@3.50	6@6¼d	9.48@10.17
†Tenn. rock (65@75%	2.50@3 00	.....	.....
§So. Car. rock, crude	3.75@4 00	.....	.....
§So. Car. rock, dried	4 50@5.00	.....	.....
Algerian, rock (63@70%	.....	7d	9 38
Algerian, rock (58@63%	.....	6¾d	8.10

Concentrated phosphates, 13@15%, average P_2O_5, 60c. per unit ($8.40 per ton) at sellers' works. South Carolina acid phosphates, 14%, $6.25 per ton in bulk f. o. b. Charleston. Tennessee acid phosphates, high grade, $10 per short ton and low grade, $8 f. o. b. Nashville.

Liverpool. Feb. 14.

(Special Report of Joseph P. Brunner & Co.)

While the shortage of supplies tends to restrict trade in heavy chemicals, the strength of the market is in no wise diminished. Chlorate of potash is the principal feature this week, the price showing a further smart advance.

The exports for the month ending January 31st, 1900, are very satisfactory, are reported by the Board of Trade as follows: Total shipments to all quarters, including United States, cwts., alkali, 354,430; bleaching powder, 107,143. Exports to United States alone, alkali, 120,850; bleaching powder, 74,145. As compared with January, 1899, these figures show a large increase, especially in alkali, principally accounted for by the much heavier shipments to the United States. Soda ash is scarce with quotations nominally unchanged. We quote spot range for tierces, about as follows: Leblanc ash, 40%, £4 15s.@£5; 58%, £5@£5 15s. per ton, net cash. Ammonia ash, 48%, £4 5s.@£4 10s.; 58%, £4 10s.@£4 15s. per ton, net cash. Bags are 5s. per ton under price for tierces. Soda crystals are in demand, and barrels are quoted at £3 2s. 6d.@£3 5s. per ton, less 5%, or 7s. less for bags, with special terms for a few favored markets. Caustic soda is strongly held, and prompt supplies are very limited. We quote spot range as follows: 60%, £9 15s.; 70%, £10 5s.; 74%, £10 15s.; 76%, £11@£11 5s. per ton, net cash. Bleaching powder is firm at £7 5s. and upward, net cash. Chlorate of potash is in demand, and a large business is reported at 4d., while makers have to-day advanced price to 4½d. Bleached soda is in moderate request at varying prices, according to market, ranging from £5 5s.@£6 15s.. per ton, less 2½% for the finest quality in 1 cwt. kegs, with usual allowances for larger packages. Sulphate of ammonia is stronger, and holders now quote £12 2s.@£12 5s. per ton, less 2½% for good gray, 24@25% in double bags f. o. b. here. Nitrate of soda is in limited supply, and dearer at £9@£9 5s. per ton, less 2% for double bags f. o. b. here, but the actual business passing is only of a moderate character.

MINING STOCKS.

Complete quotations will be found on pages 277 and 278 of mining stocks listed and dealt in at:

Boston.	Philadelphia.	London.
Colo. Springs.	Spokane.	Mexico.
Denver.	Salt Lake.	Paris.
New York.	San Francisco.	Toronto.

New York. Mar. 2.

The copper shares were weak. Amalgamated sold down to $89½, but later recovered to $90¼, and Anaconda declined from $43¾ to $41¾, rallying to $43, around which it closes. Union of North Carolina made small sales at $10½. Insiders have tried to influence the market for Arizona lead by circulating reports that a vein assaying 30% lead had been uncovered in the property. Subsequently sales of this stock were made at $11½@$12¼, on the curb. Tennessee Copper is featureless at $13 bid, as holders are not willing to sell.

For the gold stocks more demand exists. In the Colorado section Elkton Consolidated sold at $1.20 and Isabella at $1.25. Pharmacist gained at 15½@16½c. Work held at 35c., while Alamo sold off 1½ points at 17c. Anaconda made a sale at 46c., Pinnacle at 25c. and Creede and Cripple Creek at 11½c. Mollie Gibson is up 2c. at 26c., and Iron Silver also 2c. at 72c. Little Chief is firm at 18c.

In the Californias Plymouth brought 21c., and Little Tiger, which is traded in on curb, weakened to 30c., but rallied later to 40c. on limited dealings.

Ontario of Utah made an odd sale at $8.25 and Horn Silver at $1.75. Alice of Montana is firm at 70c., and Deadwood-Terra of South Dakota at 70c.

A little more is doing in the Comstocks. Ophir sold up to 60c., Chollar at 27c., Potosi at 28@29c., Savage at 14c., Mexican 19c., and Utah at 11c.

American Smelting and Refining common was weaker at $39@$39⅝, bu the preferred held up to $91 on moderate trading.

Auction sales were 30 shares Calumet & Hecla Mining Company of Michigan at $755@$758 per share; 190 shares Thomas Iron Company at $52.50 per share; 19 1/6 shares Lackawanna Iron and Coal Company at $100 each; 115 shares Lackawanna Iron and Steel Company at $101 each; 50 shares Pennsylvania Coal Company at $425 each, and 9 shares Columbus & Hocking Coal and Iron Company preferred at $40.

The National Carbon Company has declared a 1¾% quarterly dividend on its preferred stock, payable March 15th. The by-laws have been amended so that these quarterly dividends will be paid hereafter when earned on the 15th of May, August, November and February.

The Carteret Steel Company is starting up the plant of the old Warren Iron Company at Washington, N. J., and proposes to make steel by the direct process invented by Henry A. Jones, of Brooklyn, N. Y. The open-hearth furnace at this plant has been completely rebuilt. Around the furnace proper, which is burdened in the usual way, are zigzag retorts or deoxidizers, heated by gas. The ore pulverized and mixed with coke, is admitted through hoppers, and when molten, passes into the furnace proper at the zone of fusion. This metal is expected to be free from carbon and enters the furnace, escaping the zone of carbonization. The metal coming from the furnace is expected to be of a superior grade.

Boston. Feb. 28.

(From Our Special Correspondent.)

The market is quiet and weak in spots, with mining stocks rather neglected. The public does not respond to the urgent invitations from State Street. The fact is, as I have said before, that the public has no money to speculate with now, and is loaded up with stocks for which there is no sale.

The Lake Superior copper stocks sold to-day about as follows: Calumet & Hecla, $770; Tamarack, $190; Quincy, $135; Osceola, $72; Baltic, $19½; Centennial, $17½; Franklin, $14½; Mohawk, $12½; Trimountain, $7; Mass, $6; Michigan, $6; Rhode Island, $4; Tecumseh, $3½; Mayflower, $2. Isle Royale was quoted at $25½. In the blind pool group, Amalgamated sold at $90, while Boston & Montana was $265; Butte & Boston, $59; Parrot, $42; Arcadian, $16. In other coppers Utah was $28 bid; Bingham, $11; Old Dominion, $8½. Of miscellaneous mining stocks, American Zinc sold at $15; Cochiti, $10½; Santa Ysabel, $2½; North American Gold Dredging, $1½. In the miscellaneous list, Dominion Coal was $43¼; New England Gas and Coke, $19½; United States Oil, $17. Agricultural Chemical brought $25.

The report has been current that the Montana Ore Purchasing Company is to be sold to the Amalgamated Copper Company for $15,000,000, and that F. A. Heinze is to succeed Marcus Daly as manager of the Amalgamated properties in Butte. No doubt it would be worth something to put a stop to the Butte lawsuits; but the report is not believed in Boston.

It is reported that the Gold Coin Mines Company needs more money, and proposes to raise it by assessing the stockholders 25c. a share and making a new issue of 10% preferred stock.

The Alaska Bonanza Mining, Trading and Transportation Company, whose president and general manager is G. B. Moore, of 169 Elm Street, Pittsfield, Mass., advertises in the Boston papers, offering to sell bonds at par—$5 each. The company claims to have property at Cape Nome, but offers no information except that the bonds "will be advanced to $10 July 1st, and in all probability will go to $100 this season. I do not know G. B. Moore, but bonds on Cape Nome claims and powers of attorney look rather queer. Apparently investors are not to be told more until they pay up, for the advertisement says, "for prospectus and further information call or address, with money order or check for amount required, G. B. Moore"—as above. It looks like ratner a bare hook.

The Melones Mining Company (California) will hold a special meeting in Boston, March 7th, to vote on a proposition to issue 35,000 shares of $10 each, in 12% preferred stock, in addition to the present capital of $2,000,000; also to convert 35,000 shares of common stock in the treasury into 12% preferred stock; the 70,000 preferred shares thus provided for to be sold to provide money for the company.

The organization of the Washburn Wire Company of Worcester has been practically completed. The capital stock of $1,000,000 has been underwritten by a banking house in this city and the work of constructing the plant will begin immediately, it is stated. The wire mill will be in operation in 8 months and the entire plant is expected to be completed in a year. Charles G. Washburn will be president of the corporation and John D. Curtis general manager. Kidder, Peabody & Company will be the fiscal agents of the concern, and will be represented on the board of directors.

Salt Lake City. Feb. 24.

(From Our Special Correspondent.)

Among the prospects there is nothing hopeinspiring and in several instances shares sell considerably under what the properties are generally considered worth—a natural reaction from over-booming and flagrant misrepresentations of actual conditions. The dividenders remain unchanged, or where there is a change it is for the better. Volume of weekly sales has shrunk to what was formerly a fair day's business and the holiday on the 22d was most welcome.

Bullion-Beck holds its recent gain. Centennial-Eureka has again moved up, in sympathy with trading in Boston. Chloride Point is not encouraging. At each advance there are generous offerings, which cause a sag. Daisy is almost a minus quantity, large blocks going in job lots below 1 cent. This is the most rotten flotation manipulated on the Salt Lake market. The principals got out on a cash basis of over $250,000 for the property, which to-day is hawked on the street under $5,000.

At the Daly annual meeting on Monday some friction developed against the management and a committee was appointed to examine the accounts and the property, to report to the shareowners on February 28th. The old directorate was re-elected by a large majority. It is likely that active mining will be resumed and that an assessment will be levied, which prospect does not seem to affect the shares.

Daly-West steadily gains, as the fact is made manifest that the Bamberger management is not to curtail production or reduce dividends.

Grand Central hangs heavy. Several shareowners recently parted with their holdings because the annual meeting was a star chamber procedure and the management supplies no tangible information. Joe Bowers and Bowers Extension are less in favor. Lower Mammoth softened early in the week and later recovered. Mammoth is as whimsey as ever. At the monthly directors' meeting this week nothing was said of the half-promised dividend for March 1st and now President McIntyre proposes a change of policy, and in lieu of paying the shareowners all the property earns, almost as fast as it is earned, he seems to favor maintaining a monthly $20,000 dividend. What will occur offers all sorts of opportunities for guessing; however, it is not likely that other $60,000 or $80,000 dividends will soon occur. Mercur shows more strength and should continue to advance, if it is true that the details of the consolidation with the De La Mar mines are substantially agreed upon. Ontario rules strong and is in demand.

San Francisco. Feb. 24.

(From Our Special Correspondent.)

The market has shown no special change, and the holiday on Thursday helped to keep matters quiet. The business done was not large.

There is talk of a new crop of Comstock assessments, and the market shows the effect of these reports.

It is announced that no more ore from the Consolidated California & Virginia will be sent to the Morgan Mill. Experiments, it is said, have shown that the ore can be satisfactorily worked at the Kinkead Mill at a cost of $2.25 a ton—the charges at the Morgan have been $7—and that the low grade ores, heretofore neglected, can be worked at a profit and with a recovery of 75% of the values. There is much of this low grade ore which can be taken out; it assays $6 to $10 a ton.

The working of these low grade ores is really the most important matter that has come up in connection with the Comstock for a long time. If it can be carried out successfully, there is really a moderate future before several of the companies. As a stock market scheme it remains to be seen whether it will attract the public; it seems possible, but rather doubtful. So many plans have been tried that the public is sceptical of anything proposed.

Business on the Oil Exchange is somewhat better. There are many new prospects opened, and quite a rush to drill new wells.

There have been a number of oil companies incorporated lately. The list includes the following with headquarters at Los Angeles: Nuevo Calamo, $200,000; St. Bernard, $200,000; American Eagle, $120,000; Pacific, $320,000; Lago Marsino, $500,000; Rice Canyon, $200,000; Golden West Crude, $200,000. At Bakersfield: Midway, $1,000,000; Junction, $2,500,000; Emerson, $20,000; Shafter, $100,000. At Visalia: Summit, $128,000; St. Johns, $100,000. At Selma: Matthews, $200,000; Franklin, $100,000. At Modesto: Stanislaus, $100,000; Modesto, $200,000. At Pomona: Golden West Ccrude, $100,000. At Pasadena: Pasadena Oil Company, $200,000.

Paris. Feb. 18.

(From Our Special Correspondent.)

The metallurgical stocks continue very strong and active, and are the best sustained securities on the market at present. The coal stocks, however, are close behind them.

The copper shares are somewhat uncertain, but show no special weakness. The zinc shares have been affected by reports of large purchases of the metal in America for shipment to Europe. Nickel is strong on the probability of large requirements for armor-plates.

The shares of the Russian group have been active, and we are told that the industrial crisis in the Empire is passing over. The Societe de Sosnowicz has declared a dividend of 65 fr. a share for 1899. The Societe Oural-Volga has now developed its iron ore deposits so far that we are assured the company will be able to sell a considerable surplus after supplying its own furnaces. A new company, the Societe Joltaia-Ricka, an iron company in South Russia, has just been brought forward here. Another new company, the Charbonnages de Rykowski, has 8,000,000 fr. in stock and 10,000,000 fr. in 4½% debentures; it is now offering for sale here 6,000,000 fr. additional stock, bringing the total capital up to 24,000,000 fr.

The market for the Transvaal mining stocks is stronger. The new committee of French stockholders has been amusing itself by some correspondence with M. Leyds at Bruxelles, as representative of the Transvaal. The correspondence looks very diplomatic in form, but really amounts to nothing.

The total number of pieces coined at the French Mint in 1899 was 92,262,211 of a face value of 140,323,637 fr. The coinage for home, colonial and foreign use was as follows, in value:

	Gold Francs	Silver Francs.	Nickel and Bronze Francs.
France	53,965,000	27,000,000	800,000
Indo-China	.....	29,705,717	486,000
Tunis	3,001,200	1,800	.....
Bolivia	.....	175	2,000,015
Ethiopia	.....	1,045,200	.....
Litchenstein	215	625	.....
Morocco	.....	2,395,960	.....
Russia	.....	20,100,000	.....

The coinage for Russia was all in 1-ruble pieces. The total weight of metal handled at the mint was 490 metric tons.

M. de Foville, who has for many years been director of the Paris Mint, has resigned to accept a position as Councillor at the Court of Accounts. He is succeeded by M. Arnaune, Professor at the School of Political Sciences, who is especially competent in monetary questions, and is the author of a work on "La Monnaie et la Credit."

The Societe des Phosphates de Gafsa reports shipments of 63,000 tons in 1899. Most of the work done was in opening the deposits and building a railroad; but the company expects to ship 180,000 tons in 1900, and to be in a position to mine 250,000 or 300,000 tons next year.

A report on the operations of the Paris Tribunals of Commerce in 1899 shows that the number of public companies formed in Paris rose from 341 in 1898, to 434 last year. The number of partnerships registered, ordinary or "en commandite," increased from 1867 to 1902. The capital of the companies and partnerships was 898,882,121 fr. against 803,491,651 fr. in 1898. The number of companies or partnerships dissolved increased from 1,073 to 1,109. The number of judicial liquidations declared during the year declined from 187 in 1898 to 158 in 1899, and the dividends distributed to creditors, from 5,790,760 fr. to 2,940,312 fr.

I hear a report that the Russian Ministry of Finance has negotiated a loan with a syndicate of financiers in New York. The amount I have heard variously named at from 150,000,000 fr. to 200,000,000 fr. I hear also that more contracts for material for the Siberian Railroad will go to your shops and mills, which is perhaps a condition of the loan.

Is all the material for the Siberian Railroad and its Chinese extension? It is reported that material is being quietly collected for extensions and branches of the Trans-Caucasian line—into Russia, perhaps, to Herat; at any rate, to strengthen the position in Central Asia.

Who knows? At least one may be permitted to believe these stories, since they have the air of probability. Azote.

ANNUAL MEETINGS.

Name of Co.	Locat'n.	Date.	Place of Meeting.
Allouez	Mich	Mar.14	11 William St., N. Y.
Baltic	Mich.	Mar. 5.	13 William St., N. Y.
Detroit & Dead'd	So. Dak.	Mar. 5	Deadwood, So. Dak.
Hale & Norcross.	Nev.	Mar 16.	San Francisco, Cal.
*Homestake	Utah	Mar. 9.	Salt Lake City, Utah.
Mayflower	Mich.	Mar.21.	60 State St., Boston.
*Melrose Con.	Cal.	Mar. 7.	943 Kx. Bldg., Boston
Osceo'a	Mich	Mar. 8.	Boston Mass.
*Primrose	Utah	Mar.13.	Salt Lake City, Utah.
South Swansea	Utah.	Apr. 3.	Salt Lake City, Utah
Tenn. C. I. & RR.		Mar.13.	Tracy City, Tenn.
Union	No.Car.	Mar.22.	60 State St., Boston.

* Special meeting.

DIVIDENDS.

NAME OF COMPANY.	Latest Dividend. Date	Per share.	Total.	Total to date.
Am. St. & Wire com.	Apr. 2	$1.75	$875,000	$875,000
Am. St. & Wire, pf	Apr. 2	1 75	700,000	4.200,000
Federal Steel com.	Mar. 20	2.50	1 162,107	1,743.161
International Sil., pf.	Apr. 1	1 75	743,750	743,750
International Zinc.	Mar. 1	.01	10,000	20,000
National Lead pf	Mar. 15	1.75	260,844	8,607,060
Pacific Coast Borax	Dec. 29	5.00	100,000	522,500
Raven, Colo.	Mar.2	.01	10,000	89,500
Republic, Wash.	Mar. 15	.01	35,000	385 000

ASSESSMENTS.

NAME OF COMPANY.	Location.	No	Delinq.	Sale.	Amt
Alaska	Utah	...	Feb. 21	Mar. 10	.02
Alliance	Utah	23	Feb. 17	Mar. 10	.10
Alta	Nev.	64	Feb. 26	Mar. 19	.05
Amelia	Cal.	..	Mar. 15	.....	.02½
Andes	Nev.	50	Mar. 6	Mar. 26	.05
Badger	Ore.	1	Apr. 2	May 2	.10
Belle	Cal	...	Mar. 14	.....	.02
California Borax	Cal.	2	Mar. 5	Apr. 2	2.00
Caledonia	Nev.	48	Mar 12	Apr. 2	.15
Con. Imperial	Nev.	44	Feb. 27	Mar. 20	.01
Con. New York	Nev	16	Feb. 5	Feb. 27	.03
Exchequer	Nev.	41	Feb. 26	Mar. 20	.03
Goleta Con	Cal.	1	Mar. 1	Apr. 5	.06
Great Eastern	Utah	3	May 10	Apr. 2	.00½
Joe Bowers Ext.	Utah	6	Mar. 14	Apr. 4	.01
Lion Con.	Utah	2	Mar. 10	Mar. 27	.03½
Marina Marsicano	Cal.	22	Feb. 27	Mar. 15	.03
Martha Washington	Utah	4	Mar. 19	Apr. 7	.01
Mayday	Cal.	10	Feb. 7	Mar. 5	.05
New Klondike	Utah	4	Mar. 7	Mar. 23	.00½
New Erie	Utah	3	Mar. 9	Mar. 26	.00¾
Ophir	Nev.	77	Mar 8	Mar. 28	.20
Oriental	Cal.	...	Mar. 10	.....	.10
Overman	Nev.	4	Feb. 15	Mar. 8	.02
Quincy	Cal.	2	Feb. 8	Mar. 8	.02
Reward	Cal.	8	Mar. 3	Mar. 27	.02
Sailor Con.	Cal.	2	Feb. 12	Mar. 5	.02
Sierra Nevada	Nev.	118	Mar.13	Apr. 2	.15
Silver Park	Utah	1	Mar.10	Mar. 28	.04
Snow Flake	Utah	...	Mar. 1	Mar. 31	.05
Star	Utah	...	Jan. 29	Mar. 29	.10
Success	Utah	8	Mar. 17	Apr. 14	.01
Texas	Cal.	...	Mar. 12	.....	.03
Tesora	Utah	..	Feb. 13	Mar. 5	.01
Tetro	Utah	11	Feb. 15	Mar. 10	.05
Utah Con.	Nev.	32	Feb. 14	Mar. 7	.01

STOCK QUOTATIONS.

NEW YORK.

NAME OF COMPANY.	Location.	Par val.	Feb. 23. H.	Feb. 23. L.	Feb. 24. H.	Feb. 24. L.	Feb. 26. H.	Feb. 26. L.	Feb. 27. H.	Feb. 27. L.	Feb. 28. H.	Feb. 28. L.	Mar. 1 H.	Mar. 1 L.	Sales
Adams	Colo.	10	.18	....	.10	....	.14	....	.11	....	.10	....	.12	....	7,500
Alamo	"	1	18½	....	.18	....	.18½	....	.18	....	.17	....	....	....	200
Alice	Mont.	25	.55	....	.55	....	.70	....	.70	....	.50	....	.55	....	200
Ama'gamated C	"	100	92.00	91.75	93.00	89.50	90.38	90.00	89.75	89.50	91.25	91.00	....	....	910
Anaconda, c	"	25	45.00	44.00	44 38	43 75	43.75	44.00	43.75	41 75	43.00	42 50	44 25	....	4,5.5
Anaconda Gold	Colo.	5	.42	....	.45	....	.46	....	.40	....	.39	....	.37	....	....
Argentum-Jun.	"	2	.19½	....	.20	....	....	....	.20	....	.20	....	.21	.19	....
Best & Belcher	Nev.	3	.30	....	....	....	.30	....	.28	....	.30	....	.30	....	....
Breece	Colo.	25	1.45	....	1.40	....	....	....	1.35	....	1.36	....	....	....	....
Brit.Col.Copper	B. C.	10	....	....	9.75	9.00	9.75	9.00	9.75	9 00	10.25	9.50	....	....	....
Brunswick	Cal.	1	.24	....	.24	....	.25	....	.24	....	.25	....	.39	....	80
Cadillac	Nev.	5	....	....	....	....	....	....	....	....	.27	....	....	....	500
Comst'k T	"	100	.08	....	.03	....	.03½	....	.03	....	.03½	....	.03	....	1,000
Con. Cal. & Va	"	2½	1.45	....	1.40	....	1 35	....	1.25	....	1.25	....	1.25	....	800
Cr & Cr. Creek	Colo.	1	.11½	....	.11	....	....	....	.11	....	.11½	....	....	....	3,000
Cripple Cr. Con.	"	1	.19	....	.22	....	....	....	.19½	....	.20	....	....	....	1,200
Deadw'd Terra	S.Dak	25	.55	....	.55	....	.70	....	.55	....	.50	....	.55	....	292
Elkton	Colo	1	1 14	....	....	....	....	....	....	....	1.20	....	....	....	600
Findley	"	1	.14	....	.13	....	....	....	.13	....	.13½	....	....	....	....
Garfield Con	"	1	.16	....	.17½	....	....	....	.17	....	.17	....	....	....	500
Golden Age	"	1	....	....	....	....	.04½	....	.05	....	....	....	....	....	100
Golden Fleece	"	1	.25	....	.26	....	.25	....	.28	....	.27	....	....	....	1,000
Hale&Norcross	Nev	8	.25	....	.25	....	.27	....	.27	....	.28	....	.28	....	300
Homestake	S Dak	100	50.00	....	50.00	....	50.00	....	50.00	....	50 00	....	50.00	....	....
Horn Silver	Utah	25	1 15	....	1.20	....	1.20	....	1.20	....	1.20	....	1.20	....	100
Iron Silver	Colo.	20	.66	....	.65	....	.72	....	.65	....	.68	....	.80	.70	....
Isabella	"	1	1.25	....	1.25	....	1.25	....	1.25	....	1.25	....	1.25	....	3.0
Jack Pot	"	1	.55	....	.60	....	....	....	.60	....	.58	....	....	....	....
King & Pemb	Ont.	10	.35	....	.30	....	....	....	.30	....	.30	....	....	....	....
Lacrosse	Colo.	10	.14	....	.14	....	.14	....	.14	....	.14	....	.14	....	....
Leadville Con	"	10	.07	....	.07	....	.07	....	.07	....	.07	....	.08	.07	....
Little Ch'ef	"	1	.17	....	.17	....	.18	....	.17	....	.17	....	....	....	....
Little Tiger	Cal.	10	40 00	34.00	35.00	6.00	35 00	29.00	40.00	35.00	42.00	38.00	....	....	500
Mexican	Nev.	3	.24	....	.40	....	.17	....	.19	....	.17	....	.17	....	1,100
Mollie Gibson	Colo	5	.20	....	.22	....	....	....	.26	....	.23	....	....	....	300
Moulton	Mont.	25	.23	....	.30	....	.23	....	.25	....	.30	....	.30	....	....
Mt. Rosa	Colo.	1	.70	....	.70	....	....	....	.48	....	.80	....	....	....	....
Ontario	Utah	100	8.00	....	8.00	....	....	....	8.25	....	8.25	....	8.00	....	50
Ophir	Colo	1	....	....	....	....	1.60	....	....	....	....	....	....	....	....
Pharmacist	"	1	.14	....	.16	.15	.16	....	.15½	....	.16½	....	....	....	8,500
Phœnix	Ariz.	1	.10	....	.10	....	.10	....	.10	....	....	....	.12	.10	7.00
Plymouth	Colo.	1	....	....	....	....	....	....	....	....	.31	....	....	....	500
Portland	"	1	2.30	....	2 30	....	....	....	2 30	....	2.3	....	2.30	....	....
Potosi	Nev.	3	.22	....	.3	....	.20	....	.28	....	.29	....	.24	....	9.0
Quicksilver	Cal.	100	1 75	....	1.75	....	1.75	....	1 75	....	1.75	....	1.75	....	....
do. pref	"	100	7.50	....	7 50	....	7.50	....	7.00	....	7.00	....	7.50	....	....
Savage	Nev.	2	.08	....	....	....	.14	....	.08	....	.10	....	.08	....	....
Sierra Nevada	"	3	.34	....	....	....	.32	....	.33	....	.31	....	.31	....	200
Small Hopes	Colo.	20	1.00	....	1.05	....	1.10	....	1.10	....	1.10	....	1.10	....	2.0
Standard Con	Cal	1	2.70	....	2 80	....	2 80	....	2.85	....	2.85	....	3.00	2.90	....
Tenn. Copper	Tenn	10	14 50	13.75	14 50	13.75	15.00	13.50	15 00	13.50	15 00	13.50	....	....	....
Union Con	Nev	2½	.20	....	.20	....	.20	....	.20	....	.20	....	.18	....	1,4.5
Utah	Utah	10	.11	....	....	....	....	....	.11	....	.05	....	....	....	6.0
Work	Colo	1	.35	....	.35	....	....	....	.33	....	.35	....	....	....	....
Yellow Jacket	Nev	3	.14	....	.16	....	....	....	.15	....	.14	....	....	....	....

COAL AND INDUSTRIAL STOCKS.

Am. Sm. & Ref.	.....	$100	4 ⅛	39⅞	40	39⅝	39⅞	38¾	39¾	39	39⅛	39⅜	39⅛	....	7,500
" " " pf	.....	100	90⅝	....	91	....	90⅜	90	91	9 ⅛	91⅜	....	91	....	1,940
Am.S & W Con	.....	100	58¾	57	57⅜	57	57⅛	5 ⅜	57⅛	56⅞	57⅛	57	56	....	69,5 3
" " pf'r n	.....	100	93⅛	92⅜	9 ⅜	92⅜	92	9⅜	91⅜	....	91⅜	....	91⅝	....	5,088
Am. Tin Plate	.....	100	33⅜	31⅝	31⅝	....	1⅝	3⅛	31⅛	31⅛	31⅝	31⅝	32⅝	....	6,62
" " pf	.....	10.	82	81	....	....	80⅜	....	8 ⅜	8 ⅛	....	....	....	....	80
Col. Fuel & I	Colo.	100	45	43⅜	43⅜	43	43⅜	42⅜	43⅜	43⅜	44⅜	43⅛	44	....	10,510
Col. & H C.&I	"	100	....	....	....	....	....	....	17⅛	16⅜	17⅛	....	....	....	.850
Federal Steel	.....	100	54⅜	52⅜	53⅛	52⅞	53⅜	52¼	53⅜	5 ⅜	53⅞	52⅜	52¾	....	41,6 5
" " pf	.....	100	74⅜	74	74	73⅜	73	73	73⅝	73	74	73⅜	7 ⅜	....	5,933
Fleming'n C.&C	W.Va.	100	22	19	22	19	22	19	22	19	21⅜	19	21⅝	19	100
Int'l Pump	.....	100	18	17	17⅜	17	17⅛	17	18	17⅜	18	17⅜	18	17⅜	100
National Lead	N. Y	100	24⅜	....	....	....	24	24⅛	24⅜	23	23⅝	....	23¾	....	1,59
" " pf	.....	100	103⅜	....	....	....	103⅜	....	04	....	1.05	....	....	....	193
National Salt	.....	100	50	48	49½	48⅛	49 ⅛	48¾	49	46	49	45	49	48	....
" " pf	.....	100	80	78	80	78	80	78	80	78	79	78	....	....	....
Nat'l Tube	.....	100	53¼	53¼	52	5 ⅞	52¼	52	53⅜	53	53⅜	53	53⅜	53⅜	2,5 0
Press. St. Car	Pa.	100	55⅜	55	55¼	55⅜	54⅜	54⅛	54⅜	54⅛	....	....	....	....	1,300
" " pf	"	100	67	66	7	66⅞	....	....	....	....	86¼	....	....	....	650
Republic I. & S.	"	100	24¼	22⅜	23	22⅝	23¼	22½	23⅜	23⅛	23	22¾	....	....	7,6 5
" " pf	.....	100	68⅜	67	69	....	67⅜	67¼	68	....	....	67⅝	....	....	4,371
Sloss-Shef	.....	10	30	28	30	28	30	28	3 ⅜	29½	31⅛	29⅜	30⅝	29½	200
" pf	Ala.	100	70	68	70	68	70	68	70	68	70	68	....	....	200
*Stan.Oil c'f N J.	"	100	534½	5 3⅜	535	533	534	531	533	531	530	525	53	525	3 5
Tenn.C.,I.&R.R.	"	100	100	94⅜	95⅜	92¾	93¼	87⅜	93	9 ⅜	94	91	93⅝	....	46,795
" " pf	"	.....	....	....	....	....	....	....	....	....	....	....	....	....	....
U S.Cast I.P.&F	.....	10	8½	8	8¼	8	8⅛	8	9⅛	8¾	8⅛	7⅜	8¼	7¾	....
" " pf	"	100	46⅜	45¾	50	48⅜	52	49	51	48	48	45	48	46	200

* Ex-dividend Total sales, 213,420.

PHILADELPHIA, PA.*

NAME OF COMPANY.	Location.	Par Val.	Feb. 22.‡ H.	Feb. 22.‡ L.	Feb 23. H.	Feb 23. L.	Feb. 24. H.	Feb. 24. L.	Feb. 26. H.	Feb. 26. L.	Feb 27. H.	Feb 27. L.	Feb. 28. H.	Feb. 28. L.	Sales
Am. Alkali	.....	.....	.....	.....	2.68	.....	.....	.....	2.50	..	2.63	.....	2 50	2.38	1,1 5
" pf.	.....	.....	.....	.....	1.00	.....	.....	.....	.....	.....	88	.....	.....	.....	345
Bethlehem Irn	Pa.	.....	.....	.....	.....	.....	.....	.....	58.00	.....	.....	.....	.....	.....	24
§Bethlehem St'l	"	$50	.....	.....	.....	.....	.....	.....	17.50	.....	.....	.....	17 50	.....	420
Cambria Iron	"	50	.....	.....	44.38	.....	.....	.....	44.00	.....	44.0	.....	44 00	.....	666
Cambria Steel	"	50	.....	.....	21.25	20.75	21.25	.....	21 25	20.75	20.88	20.75	21 00	21 75	2,861
Susq. I & S.	"	10	.....	.....	4.00	3.88	.....	.....	3.88	.....	3.7	.....	4.00	3.88	1,144
United Gas I	"	50	.....	.....	154	153¾	154	.....	151	150	15	.....	149½	150¾	1,563

Total shares sold, 8,138. * Reported by Townsend, Whelen & Co., 309 Walnut St, Philadelphia. ‡ Holiday.

TORONTO ONT.

NAME OF COMPANY.	Par val.	Feb. 19. B.	Feb. 19. A.	Feb. 20. B.	Feb. 20. A.	Feb 21. B.	Feb 21. A.	Feb. 22. B.	Feb. 22. A.	Feb. 23. B.	Feb. 23. A.	Feb. 24. B.	Feb. 24. A.	Sales
Ontario:														
Alice A	$1	.04½	.07	03	.05	.04	.05	.04	.05	.04	.06	.05	06	1,0 0
Golden Star	1	.19	20	.18½	.1	.18	.20	.18¾	20	.18¾	.22	2½	.22	8.5 0
Hom Reef	1	.13¾	.18½	.10	.1 3½	.10¼	.13½	.10	.12	.10	.12½	.10	.12½	1,.00
Olive	1	.68	.71	.67	.70	.67	.72	.68	.72	.65	.74	.60	.69½	1,000
British Col.:														
Athabaska	1	.29	33	.29	33	.28½	33	.29	33	.28½	.32½	.29	.32½	2,000
Big Three	1	.06¼	.0 ½	.06½	.07½	.06½	08	.08	.09	.08½	.10	.08½	10½	17.0 0
Caribo(McK	1	75	85	75	.83	74	83	75	83	75	.83	.74	.80	50
Crow's N C	25	26.00	35.00	35 00	....	30.00	35 00	31.00	35.00	27. 0	32.50	35 00	....	....
Deer Trail	1	08¾	10	08¼	.10	.08	.10	.08½	09¼	09	.10	09¼	.10	6,000
Evenl'g Star	1	.07	.09	.7	.08¾	.07½	09	07½	.09	07	.10	.7¾	.08¼	1,7.0
Iron Mask	1	.26¼	45	35	.45	.25	.45	40	.45	.40	....	49	....	....
Knob Hill	1	.70	.85	.75	.80	.85	.80	.8	....	.75	....	.75	....	....
Lone Pine S	1	.13¾	.17	14	.16	14	.16½	14	.16	14	16	.13¾	.16	2,500
Manehaha	1	.08	.14	.08	.11	10	13	.09¾	13	10	13	.10	18	1,000
Mont Cristo	1	.03	.05	03¼	.04	.03	04¾	.03	.04¾	03	.04¾	.03¼	.04¾	5,0 0
Mont &Lon.	0.24	.26	.30	26½	.29	26	.3	.25	30	.26¾	.30	.27	.30	500
Morrison	1	.04	.05	.04	.05	.03	.04¾	.4	.05	.03¾	.05	.04	05	5,000
Noble Five	1	.07¾	.12	.09	.13	.07	.10	.09	.10	.08	.10	08	.0	....
North Star	1	1 08	1.14	....	....	1.10	1.14	....	....	....	....	....	....	400
Princess M	1	.05½	.09	.06	.08	.06	.08½	.06	.08	.06	.08	.06	.06¾	500
Rathmullen	1	.04¾	.06	.04¾	.5¼	.04¾	.05¾	.04¾	.05¾	.04¾	.05¼	.04¾	.05	14,000
Republic	1	.94	.97	90	.98	9 ¾	.99	.95	1.00	.95	1.00	.96	1.0	1,5 0
Van Anda	1	.03¾	06	.03½	.04¼	.03¾	.4½	.04	.04½	.03¾	.04¾	.04	.05	28.500
Victory Tri	1	0 ¾	.04¾	.03	.04	.02	.04	.03	.04	.2¾	.04	.03¾	.04	4,.0
Virtue	1	.06¾	.71	.68	.8	.74	.80	.73½	.77	.74	.77	.74	.77	1,000
War Eagle	1	1.48	1 16¾	1.54	1.57	1.50	1.70	1.45	1 53	1.49	1.45	1.36	1.47	1,450
Waterloo	0.10	.06	10	.06	.10	.06	10	.06¾	.09	05	.09	.04¾	.0	....
White Bear	1	.02¾	03¾	02¼	03¾	.02¼	.03¾	.0 ¾	.03¾	.02	.02¾	.02	.02¾	7,000
Winnipeg	1	17	.24½	.15	.20	.15	.23	.15	.20	15	.20	.15	.20	....
Develop Co.														
B C.G.Field	1	.02¾	03¾	.02¾	.03¼	.02¾	.03¼	.02¾	.03¾	.02¾	03¼	.02¾	.03¼	2,000
Can. G. F. S.	0 1	.06	.07	.05¾	.06¾	.5	.06¾	.06	.07	.05	.06¾	.06	.06¾	8 000
Gold Hills	1	.04¾	.05	.04¾	.04¾	.04¼	.05	.04¾	.04¾	.04½	.05	.04¾	.05	5,000

BOSTON. MASS.†

NAME OF COMPANY.	Par val.	No. of shares.	Feb. 22.* H.	Feb. 22.* L.	Feb. 23. H.	Feb. 23. L.	Feb. 24 H.	Feb. 24 L.	Feb. 26. H.	Feb. 26. L.	Feb 27. H.	Feb 27. L.	Feb. 28. H.	Feb. 28. L.	Sales
Adven'n'e.Cons	$25	100,000	....	....	5 50	5.0	5 00	4.75	....	....	5.00	....	5 00	....	50
Aetna, Cons. g	5	100.000	....	....	....	....	4 9	....	....	....	....	....	....	....	375
Alloues	25	80,000	....	....	....	....	2 75	2.50	2.63	2.50	3.00	....	....	....	910
Amal. Cop.	10	750,000	....	....	93.75	92.00	92.00	9 .0	91.00	89.50	90.50	89.50	91.50	90.00	1,979
m. Z. L. & S.	25	60,000	....	....	15.50	....	16 0	15.50	....	....	16 00	15 25	16.00	15.00	700
Anaconda	25	1,200,000	....	....	....	....	....	....	....	....	....	....	....	....	....
Arcadian, c.	25	150,000	....	....	17.00	....	16 5	....	16.75	15.25	16.00	15.50	16.00	15.25	419
Arnold, c.	25	60,000	....	....	....	....	5.50	5 52	5.50	....	5.50	....	5.5	....	295
Ashbed	25	40,000	....	....	....	....	....	....	....	....	....	....	....	....	....
Atlantic, c.	25	40,000	....	....	....	....	24.00	....	23.00	....	....	....	....	....	80
Baltic, c.	25	100,000	....	....	22 68	21.88	21.75	21.50	20.50	20.25	20 00	....	20.25	20.00	930
Bingham, c. g.	10	190,000	....	....	11.50	11.25	....	....	....	....	....	....	11.00	....	300
Bonanza, Dev.g	10	300,000	....	....	1 25	....	1.25	....	1 25	....	1.38	1.25	1.25	....	895
Boston, q	10	10,000	....	....	....	....	....	....	5.00	....	....	....	....	....	25
Boston&C G	25	200,000	....	....	.1	....	15	....	.15	....	....	....	....	....	1,200
Bos.&Mon,Tr R	25	150,000	....	....	278	273	270	267	....	....	267	265	265	....	292
Breece	25	200,000	....	....	....	....	....	....	....	....	....	....	....	....	....
British Col.	5	200,000	....	....	....	....	....	....	....	....	....	....	9.50	....	100
Butte & Bost., c	10	200,000	....	....	65.00	62 00	62.5	61.00	61 00	59.00	60.00	59.00	60 5	57 00	11,825
Cal. & Hecla, c.	25	100,000	....	....	770	765	....	....	770	765	770	....	....	....	12
Catalpa, s	10	300,000	....	....	25	....	....	....	.27	....	....	....	....	....	1,000
Centennial, c.	25	90,000	....	....	18.00	....	18.5	18.38	18.00	17.50	17 25	17.00	17.50	17.00	678
Cent'l-Eureka	25	100,000	....	....	....	....	....	....	....	....	24.00	23.00	23.50	....	440
Central Oil	25	60,050	....	....	19 00	18.75	....	....	....	....	....	....	....	....	375
Cochiti, g	10	157,000	....	....	10.88	10.50	10.75	10 50	11.00	....	10.75	10.50	11.00	10.50	1,572
Cont Z.Mg&Sm	10	110,000	....	....	3.75	....	....	....	....	....	....	....	....	....	75
Copper Range	25	100,000	....	....	....	....	....	....	....	....	....	....	23 00	....	75
Dominion Coal	100	150,000	....	....	42.50	42.25	42.00	....	....	....	....	....	43.25	43.00	750
do. pref	100	20,000	....	....	116	....	....	....	117	....	....	....	....	....	25
Elm River	12	100,000	....	....	4 88	....	....	....	....	....	4 88	4.50	4.50	....	880
Federal Steel	100	464,843	....	....	54.88	53.00	53.50	53.00	53 63	52.38	53.25	52 75	53.00	....	2,710
do. pref	100	532,610	....	....	76.00	....	74.50	73.50	73 50	73.13	73.5	73.00	....	....	414
Franklin, c.	25	100,000	....	....	15.00	....	15 00	....	....	....	15.00	14 5	14 00	14.25	575
I. Royal Con. c.	25	100,000	....	....	26.00	25.25	....	....	....	....	25.50	25.00	25 50	....	871
Mass. Con.	25	100 000	....	....	6 00	....	6.50	6 25	6.5	6.00	6.00	....	6 13	6.00	455
Mayflower	25	10 ,000	....	....	2 50	....	....	....	2.75	....	....	....	2..0	....	525
Melones	10	167,577	....	....	1.25	....	....	....	....	....	....	....	....	....	100
Merced, g	15	100,000	....	....	8 00	....	....	....	....	....	....	....	....	....	100
Michigan	25	100,000	....	....	....	....	....	....	....	....	6.00	....	6.00	....	250
Mohawk, c.	25	100,000	....	....	14.50	....	14 50	....	14.5	14.00	14.00	12.25	13.5	13.25	1,951
Montana C &O	5	100,000	....	....	....	....	....	....	....	....	7.25	....	....	....	50
N.A.Gold Dre'g	10	100,000	....	....	....	....	....	....	....	....	....	....	....	....	....
Old Colony, c	25	100,000	....	....	3.50	....	3.50	....	....	....	....	....	....	....	100
Old Dominion,c	25	150,000	....	....	....	....	....	....	19.50	19.00	19.00	18.25	18.75	18.38	605
Osceola, c	25	93,000	....	....	75 00	74.50	75.00	74.00	74.00	73.00	73.50	72 5	74.00	73.00	479
Parrot, s c	10	229,250	....	....	45.00	44 5.	44.75	44.00	44.0	43.00	42.50	41.50	43.00	41.50	1,418
Pioneer, q	10	100,000	....	....	....	....	....	....	....	....	....	....	....	....	....
Quincy, c	25	100,000	....	....	140	....	....	....	140	....	....	....	135	....	44
Rhode Island	25	100,000	....	....	....	....	....	....	....	....	....	....	4.00	....	29
Santa Fe, g. c.	10	250,000	....	....	....	....	6 50	6.00	6.00	....	....	....	6.00	....	470
San. Ysabel, g.	5	130,000	....	....	....	....	2.25	....	2.50	....	....	....	....	....	400
Tamarack, c.	25	60,000	....	....	192	....	....	....	....	....	....	....	190	....	13
Tecumseh	25	80,.00	....	....	....	....	....	....	....	....	....	....	3.5	....	25
Tri Mountain	25	100,000	....	....	7.00	....	7.00	....	....	....	7.00	....	7.00	....	215
Union C. L.	25	80,000	....	....	....	....	....	....	....	....	....	....	2.50	2.25	100
United States	25	250,000	....	....	....	....	9 00	....	....	....	....	....	....	....	50
U. S. Oil	25	100,000	....	....	18 75	8.00	18.50	....	18.25	17.00	18.0	16 63	17.50	16.50	3,136
Utah Cons,g. c.	5	3,0,000	....	....	30.00	29.63	29 75	....	29.0	....	28.5	28.25	....	....	440
Victoria	25	100,.0	....	....	3.50	....	....	....	3.0.	....	3.00	....	....	....	630
Washington	25	40,000	....	....	....	....	....	....	1.13	....	....	....	1.13	....	200
White Knob	100	5,,,0	....	....	34.00	32.00	....	....	32.00	31 00	31.00	30.00	....	....	2,700
Winona, c.	25	10,,000	....	....	....	....	....	....	....	....	....	....	3 00	....	50
Wolverine, c.	25	60,00.	....	....	....	....	41 50	40 00	41.00	40.25	40.50	....	41.00	....	201
Wyandotte	25	100,0 0	....	....	....	....	1.75	....	....	....	....	....	....	....	110

† Official quotations Boston Stock Exchange. Total sales, 34,333. *Holiday.

SAN FRANCISCO, CAL.

NAME OF COMPANY.	Location.	Par value.	Feb. 22 *	Feb. 23.	Feb. 24.	Feb. 26.	Feb. 27.	Feb. 28
Belcher	Nev.	$3.00	.....	.22	.22	.21	.21	.27
Best & Belcher	"	3.00	.....	.34	.34	.34	34	.33
Caledonia	"	3.00	.....	.38	.38	39	.39	.40
Challenge Con	"	3.00	.....	.19	.18	.18	.18	.18
Chollar	"	3.00	.....	.18	.18	.18	.22	.22
Confidence	"	3.00	.....	.75	.75	.73	.63	.74
Con. California & Virginia	"	2 50	.....	1.40	1.40	1 35	1 35	1 35
Crown Point	"	3.00	.....	.09	.09	.09	.09	.10
Gould & Curry	"	3 00	.....	.14	14	.14	.14	.13
Hale & Norcross	"	3.00	.....	.30	.31	.31	.34	.32
Justice	"	2 00	.....	.06	.05	.05	.07	.05
Mexican	"	3.00	.....	.19	.19	.19	.19	.19
Occidental Con	"	3.00	.....	.11	.11	.11	13	.14
Ophir	"	3.00	.....	.53	.53	.54	.54	.53
Potosi	"	3.00	.....	.24	.24	24	.26	.27
Savage	"	2.50	.....	.11	.11	.11	.11	.11
Sierra Nevada	"	3.00	.....	.36	.37	.37	.36	.34
Standard Con	Cal.	10.00	.....	2.65	2.70	2.75	2 70	2.65
Union Con	Nev.	2 50	.....	.23	.23	.22	.22	.21
Utah Con	"	1.00	.....	10	.10	11	.09	.07
Yellow Jacket	"	3.00	.....	.18	.18	.17	.16	.16

Official telegraphic quotations of San Francisco Stock Exchange * Holiday.

CALIFORNIA OIL STOCKS.*

Name of Company.	No. of shares.	Par Val.	Feb. 16. H.	Feb. 16. L	Feb. 17. H.	Feb. 17. L	Feb 19. H.	Feb 19. L.	Feb 20. H.	Feb 20. L.	Feb 21. H.	Feb 21. L	Feb 22.† H	Feb 22.† L.	Sales
Anaconda	10 000	$5.0	.6	6	6	.60	6	.50	3	....	.50	....	....	....	4,900
Barker Ranch	2 0,0	1.00

STOCK QUOTATIONS.

COLORADO SPRINGS, COLO.‡

Name of Company.	Par val	Feb. 12 B.	Feb. 12 A.	Feb. 13. B.	Feb. 13. A.	Feb. 14. B.	Feb. 14. A.	Feb. 15. B.	Feb. 15. A.	Feb 16. B.	Feb 16. A.	Feb. 17. B.	Feb. 17. A.	Sales.
Acacia	$1	.....	.....	.37½	.37¾	.37	.37½	.37½	.37¾	.37½	.38¼	.37½	.37½	35,500
Alame	1	.....	.....	.16¾	.17¼	.16¾	.17¼	.16¾	.17	.16	.17	.16	.17¼	14,500
Am. Con	1	.....	.....	.05¼	.06	.05¼	.05¾	.05¾	.05¾	.06	.06	.05¾	.06	.....
Anaconda	1	.....	.....	.42½	.47	.44	.45	.....	.44	.41¾	.42¾	.40	.41	7,399
Anchor	1	.....	.....	.02½	.02¾	.....	.02¾	.02	.02¾	.02¾	.02¾	.....	.02¾	.....
AnchorialL	1	.....	.....	.90	.93¼	.90	.....	.90	.....	.90	.....	.90	.....	3,500
Antelope	1	.....	.....	.03¾	.03¾	.03¾	.03¾	.03¾	.03¾	.03¾	.03¾	.....	.....	19,000
Aola	1	.....	.....	.05¼	.05¾	.05¼	.05¾	.05¼	.05¾	.05¾	.....	.05¾	.05¾	16,000
Arcadian	1	.....	.....	.06¾	.06¾	.06¾	.07	.....	.07	.....	.07	.....	.....	5,000
Arg'ntum J	1	.....	.....	.18	.18¾	.18¼	.....	.18¼	.20	.18	.....	.18	.18¼	1,000
Banner	1	.....	.....	.04¾	.05	.04¾	.05	.04¾	.05	.04¾	.05	.04¾	.05	.....
Battle Mt.C.	1	.....	.....	.35¼	.36	.34¾	.35¼	.33¾	.....	.34¼	.34¾	.34	.35	.....
Ben Har	1	.....	.....	.08	.08¾	.07¾	.08¼	.....	.08¼	.07	.08	.07¾	.07¾	10,000
Black Bell	1	.....	.....	.18	.14	.14¾	.13¾	.13¾	.13¾	.12	.13	.....	.....	2,000
Blue Bell	1	.....	.....	.....	.....	.12	.....	.12	.....	.12	.....	.12	.....	.....
Bob Lee	1	.....	.....	.06¾	.06¾	.06¼	.06¾	.06¼	.07	.06¼	.06¾	.06¾	.06¾	5,000
Buckhorn	1	.....	.....	.07¼	.07¾	.07	.07¾	.07¼	.07¾	.07¼	.07¾	.07¼	.07¾	4,000
Cadillac	1	.....	.....	.02	.02¼	.02	.02¼	.02	.02¼	.....	.....	.02¼	.02¾	5,000
Central C'n	1	.....	.....	.06¼	.06¾	.06¾	.....	.06	.07	.06¾	.07	.06¾	.07	1,000
Champion	1	.....	.....	.08	.08¼	.....	.08	.07¾	.08	.08	.08¼	.08	.08¼	6,000
Chicolo	1	.....	.....	.04	.04¼	.04	.04¼	.04	.04¼	.04	.04¾	.04	.04¾	6,000
C.K.&N	1	.....	.....	.....	.....	.04¾	.02¾	.02¼	.03¾	.02¾	.02¾	.02¾	.03¾	49,000
C.C.Col'bia	1	.....	.....	.10¾	.10¾	.10	.10¾	.0988	.10	.10¼	.10¾	.12	.12¾	24 000
C.C G. Ext	1	.....	.....	.....	.....	.....	.11¾	.....	.....	.....	.11¾	.....	.....	1,000
C.C. & Man.	1	.....	.....	.14	.14¼	.13¾	.13¾	.....	.13¾	.13¾	.14¾	.13¾	.14	13,000
Copper Mt.	1	.....	.....	.07	.07¾	.06¾	.07	.06¾	.07¼	.07¼	.07¾	.06¾	.07¼	65,000
Creede&CC	1	.....	.....	.11	.11¾	.....	.12	.....	.14	.....	.12	.17	.17¾	2,000
C. C. Con	1	.....	.....	.17¼	.17¾	.16¾	.17¼	.16¾	.16¾	.16¾	.17	.17	.17¾	43,700
Dante	1	.....	.....	.15¾	.15¾	.15¾	.15¾	.16	.16¼	.16¼	.16¾	.16¾	.16¼	66,000
Des Moines	1	.....	.....	.05¾	.05¾	.....	.06¼	.05¼	.06¾	.06¼	.06¾	.05¾	.06¼	2,000
Eclipse	1	.....	.....	.07¼	.08	.07¾	.08	.08	.08¼	.08¾	.09¼	.08¾	.....	34,000
ElktonCon	1	.....	.....	1.18	1.28¾	1.18	.....	1.18¾	1.19¼	1 20	1.20¾	1.20	1.21	7,000
El Paso G	1	.....	.....	.33¼	.35	.33	.33¾	.33¼	.34	.33¼	.34¾	.34¾	.....	26,000
Enterprise	1	.....	.....	.25	.25¼	.....	.25	.22	.25	.23¾	.25¼	.23¾	.25	9,000
F.Rawlings	1	.....	.....	.27	.30	.27¼	.30	.27¼	.30	.28	.28	.28	.....	.....
Favorite	1	.....	.....	.13¼	.13¾	.05¾	.06¼	.06¼	.06¾	.06¼	.06¾	.06	.06¼	2,000
Findley	1	.....	.....	.....	.....	.13¾	.13¾	.13	.....	.13¼	.13¾	.13	.14	1,000
Garf. Con	1	.....	.....	.15¾	.15¾	.15¾	.15¾	.15¾	.16	.16	.16¼	.15¼	.....	13,500
Golden Fl	1	.....	.....	.....	.31	.....	.31	.25	.....	.25	.....	.25	.....	500
Gold Hill	1	.....	.....	.02¾	.03	.02¾	.....	.02¾	.03	.....	.04	.02¾	.13	14,000
Gold.Sov'n	1	.....	.....	.10¼	.10¾	.09¾	.11¾	.11¾	.10¾	.10¾	.11	.11¼	.11¾	92,000
Hayden	1	.....	.....	.02¼	.02¾	.02¾	.02¾	.02¼	.03	.02¼	.02¾	.0 ¾	.02¾	21,000
Ida May	1	.....	.....	.28	.29	.27	.29	.28	.29	.29¼	.30	.29¼	.3	8,000
Independce	1	.....	.....	.58	.60	.59	.61	.58¾	.58¾	.58¾	.59	.59	.61	5,800
Ing. Con	½	.....	.....	.18¾	.18¾	.18	.18¾	.18	.18¾	.18	.19	.18¾	.18¾	169,700
Isabella	1	.....	.....	1.3.¾	1.30¾	1 29¼	1.30¼	1.31¼	.....	1 31	1.3.¼	1.31	1.32	54.9.0
Jack Pot	1	.....	.....	.61¼	.60¾	.60¼	.60¾	.6.¼	.60¾	.6.¼	.61	.60¼	.61¼	12,3.0
Josephine	1	.....	.....	.03¾	.03¼	.03¾	.04	.....	.03¼	.03¾	.03¾	.03¾	.03¾	4,000
Key West	1	.....	.....	.05	.05¾	.0.	.05¼	.05	.05¼	.0.	.05¾	.05	.05¾	18,000
Lexington	1	.....	.....	.20¼	.20¾	.20	.2.¾	.21¾	.2.¾	.22	.22¼	.2 ¾	.22	108,500
Magnet R	1	.....	.....	.04	.04¾	.04	.04¾	.04	.04¾	.04¼	.....	.04¾	.04¾	18,000
Margaret	1	.....	.....	.03¼	.03¾	.03¼	.03¾	.03¾	.....	.03¾	.....	.03¾	.04	5,000
Margery	1	.....	.....	.05	.05¼	.05	.0.¾	.0.¾	.05	.....	.05	.04¾	.05	11,000
Matoa	1	.....	.....	.2.	.29¼	.26	.28	.25	.26	.25¼	.26	.25	.26¼	4,000
Midway	1	.....	.....	.07¼	.07¾	.07¼	.07¾	.0.¾	.07¼	.07¾	.08	.07¾	.0.¾	26,200
M. J T	1	.....	.....	.04	.04¾	.04¾	.04¼	.04¾	.04¾	.04¼	.04¾	.04¾	.04¾	22,000
Mobile	1	.....	.....	.03¼	.04	.03¾	.04	.03¾	.04	.0.¾	.04	.03¾	.04	4,000
Moll.Dwyer	1	.....	.....	.03	.03¼	.03	.03¼	.03¼	.....	.03¼	.03¾	.03¾	.0.¾	18,000
Mollie Gib.	1	.....	.....	.....	.25¼	.25	.25¼	.25	.27	.25	.....	.25	.....	2,500
Monarch	1	.....	.....	.13¾	.13¾	.13¾	.13¾	.14¾	.14¾	.14¾	.14	.14¼	.14¾	49,000
Montreal	1	.....	.....	.08	.....	.08	.09	.08	.08¾	.0.	.0.¾	.....	.....	.....
Moon-A'c'r	1	.....	.....	.64¼	.65	.65¼	.....	.65¼	.66¾	.65¼	.66	.....	.67	8,560
Morning S	1	.....	.....	.03¼	.04	.04¼	.04¾	.04¼	.04¾	.14¼	.04¾	.04¾	.04¾	33,000
Mtn.Beauty	1	.....	.....	.10¾	.10¾	.10¼	.10¾	.10¾	.10¾	.10¾	.10¾	.10¼	.10¾	14,000
Mt Rosa	1	.....	.....	.69¾	.73	.70	.....	.71	.72¾	.71¾	.72	.72	.75	650
National	1	.....	.....	.12¼	.12¾	.11¾	.1.¾	.1.¾	.11¾	.11¾	.11¾	.11¾	.11¾	56,000
Nellie V	1	.....	.....	.10	.10¼	.09¾	.10¼	.09¾	.10¼	.09¾	.10	.09¾	.....	1,000
New Haven	1	.....	.....	.09¾	.09¾	.09¼	.09¼	.08¾	.09	.09	.09¼	.08¾	.09	126,000
OliveB'nch.	1	.....	.....	.....	.09¼	.....	.09	.08¾	.09	.08¾	.09	.08¾	.09¼	12,000
Oriole	1	.....	.....	0 ¾	.05¼	.05¾	.05¾	.05¾	.05¾	.0.¾	.05¾	.0.¾	.05¾	3,000
Orphan	1	.....	.....	.23¼	.24	.24	.....	.23¾	.23¾	.24	.24¾	.23¾	.23¾	36,500
Pelican	1	.....	.....	.03¼	.03¾	.03¼	.03¾	.03¼	.03¾	.03¼	.04	.03¼	.03¾	7,000
Pharmacist	1	.....	.....	.12¾	.13¼	.....	.12¾	.13	.13¼	.12¾	.13	.12¾	.....	10,750
Pilgrim	1	.....	.....	.13¾	.14¼	.12¾	.12¾	.13¾	.13¾	.13	.13¼	.13¾	.13¾	31,000
Pinnacle	1	.....	.....	.25¼	.26	.25	.25¾	.25	.25¾	.25	.25¾	.25	.26	11,500
Portland	1	.....	.....	2.35	.....	2.35	2.37	2 37	2 38¼	2.36¼	2.37¼	2.35¼	2.39	6,900
Prince Alb.	1	.....	.....	.06	.06¼	.05¾	.06	.....	.06	.06	.06	.....	.....	1,580
Princess	1	.....	.....	.05¾	.05¾	.0.¾	.05¾	.05¾	.05¾	.05¾	.0 ¾	.05¼	.06	10,000
Progress	1	.....	.....	.09¼	.09¾	.09¼	.09¼	.1.¼	.09¾	.09¼	.09¾	.....	.....	5,500
Pythias	1	.....	.....	.07¼	.07¾	.07	.07¾	.07¼	.07¾	.07	.07¾	.07	.....	5,000
Raven	1	.....	.....	.83¼	.84	.83¼	.84	.83	.83¾	.83	.83¼	.82	.83¼	7,50
Republic	1	.....	.....	.06¾	.06¾	.06¾	.06¾	.06¼	.07	.06¾	.06¾	.06¼	.06¾	18,000
Rob'tBurns	1	.....	.....	.06¼	.06¾	.06	.06¼	.06	.06¼	.06	.06¾	.06¼	.06¾	20,000
Rose Maud	1	.....	.....	.10¾	.1 ¾	.10	.....	.10¾	.11¼	.10¾	.11	.....	.....	16,000
Rose Nicol	1	.....	.....	.13	.13¼	.13	.13¼	.13¼	.13¾	.13	.13¼	.13	.13¼	19,900
Silver Gold	1	.....	.....	.01¾	.02¾	.01¾	.01¾	.01¾	.01¾	.....	.01¾	.....	.....	6.000
Specimen	1	.....	.....	.11¾	.11¾	.11	.11¾	.11¾	.11¾	.11¾	.11¾	.11¾	.11¾	5,800
Tornado	1	.....	.....	.55¼	.55¾	.54	.55	.54	.54¾	.54¼	.55	.53¾	.54¾	44,000
Touraine	1	.....	.....	.05¾	.....	.05¾	.06	.....	.....	.05¾	.1 6	.05¾	.06¼	4,00
Trachyte	1	.....	.....	.06¼	.07	.06¼	.06¼	.06¾	.06¾	.06¼	.06¾	.06¼	.06¾	14,000
Uncle Sam	1	.....	.....	.06	.06¼	.06	.06¼	.06	.06¼	.05	.06¼	.06¼	.06¾	1,000
Union	1	.....	.....	.47¾	.48¼	.47¾	.48¼	.48¾	.48¾	.47¾	.48	.48	.48¾	16,200
Vindicator	1	.....	.....	1.57¾	1.60	1.55	1.65	1.58	1.61	1.57¼	1.60	1.58	1.65	4,500
Work	1	.....	.....	.32¾	.32¾	.33¾	.33¾	.34¼	.35	.35¼	.34¾	.34¾	.35	86,42
Zenobia	1	.....	.....	20¾	.21	.....	20¾	.19¾	.20¼	.19¾	20	.....	.20	4,000

‡ Colorado Springs Mining Stock Exchange. Total sales, 1,721,011 shares.

DENVER, COLO.‡

Name of Company.	Par val.	Feb. 17. B.	Feb. 17. A.	Feb. 19 B.	Feb. 19 A.	Feb. 20. B.	Feb. 20. A.	Feb. 21. B.	Feb. 21. A.	Feb. 22 * B.	Feb. 22 * A.	Feb. 23 B.	Feb. 23 A.	Sales.
Anaconda	5	.35	.41	.38	.42¾	.39¾	.....	.43	.45	.....	.....	.....	.43	1,000
Arg. J	1	.....	.....	.....	.20	.....	.19¾	.19	.....	.....	.....	.20¾	.....	1,000
C K & N.	1	.03¾	.04¼	.....	.....	.03¾	.027	.03¾	.03¾	.....	.....	.02¾	.03¾	1,000
Dictator	1	.04	.04¼	.03¾	.04¾	.03¾	.04¼	.04¼	.04¾	.....	.....	.04¼	.04¾	71,000
Favorite	1	.....	.06¾	.....	.....	.06	.06¼	.06	.06¾	.....	.....	.05¾	.06¾	1,00
Gold Hill	1	.02¾	.03	.02¼	.06	.02¾	.03	.02¾	.03	.....	.....	.03	.03¼	3,000
New Haven	1	.05¾	.....	.09¾	.09¼	.09¼	.09¼	.09¼	.10	.....	.....	.09¼	.09¾	10,000
New Zeal'd	1	.40¾	.50	.39¾	.....	.41	.41¾	.41	.50	.....	.....	.40¾	.....	1,500
Pr. Albert	1	.05¾	.06¾	.....	.....	.05¾	.06¼	.06¼	.....	.....	.....	.06¾	.07	6,000
Puritan	1	.01¾	.01¾	.01¾	.02	.01¾	.02	.01¾	.02	.....	.....	.01¾	.02	15,000
Sacram'nto	1	.10¾	.10¾	.10¾	.10¾	.11¾	.11¾	.12¾	.....	.....	.....	.13	.....	3,000
Work	1	.34¾	.35	.34¼	.....	.34¼	.34¾	.....	.....	.....	.....	.34¾	.35	3,10

‡ Official Quotations Denver Stock Exchange. Total sales, 116,600 shares. * Holiday.

SPOKANE, WASH.*

Feb. 10.

Name of Company.	Par val.	Prices. B.	Prices. A.	Sales.	Name of Company.	Par val.	Prices. B.	Prices. A.	Sales.
Butte & Boston	.....	.03¾	.04¾	.....	Morning Glory	0.10	.03¾	.05	1,000
Conjecture	.....	.01¾	.....	5,000	Morrison	.....	.04	.05	.....
Crystal	.....	.03¼	.05¾	.....	Mountain Lion	1.00	.....	.....	.....
Deer Trail No. 2	$1	.10¾	.14¾	.....	Noble Five	$1	.....	.....	.....
Evening Star	1	.07¾	.09	.....	Palmer Mountain	.....	.....	.....	.....
Gem	.....	.....	.....	.....	Pearl	1	.....	.....	.....
Giant	.....	.....	.....	.....	Princess Maude	0.10	.06	.08	.....
Gold Ledge	.....	.05¾	.07¾	.....	Quilp	1	.19¾	.24¾	.....
Golden Harvest	1	.01¾	.02¾	2,000	Rambler Cariboo	0.25	.48	.53¾	.....
Gopher	.....	.....	.....	.....	Republic (Con)	1	.....	.....	.....
Insurgent	0.10	.02¾	.....	.....	Reservation	.....	.07	.10¾	.....
Iron Mask	.....	.....	.....	.....	Sullivan	.....	.07¾	.10	.....
Jim Blaine	1	.25	.....	.....	Tom Thumb	1	.14	.18¾	.....
Lone Pine-Surp. Con	1	.13¾	.15	.....	War Cloud	.....	.....	.....	.....
Mammoth	.....	.00¾	.00¾	.....	Winnipeg	.....	.....	.....	.....

*Official quotations Spokane Stock Exchange. Total sales, 6,000

MEXICO.

Feb. 17.

Name of Company.	No. of shares.	Last div'd	Prices. Op'g.	Prices. Cl'g.	Name of Company.	No. of shares.	Last div'd	Prices. Op'g.	Prices. Cl'g.
Chihuahua:					Hidalgo:				
Gloria	1,500	.....	$30	$30	Real del Monte	2,554	10.00	550	500
Durango:					San Francisco He	6,000	3.00	200	195
Barradon y Cab	1,200	.....	40	40	San Rafael y An	1,300	12.00	98	875
Candelaria de Pan	1,200	.....	20	20	do. aviado	1,300	6.00	380	360
Capuzaya	2,400	.....	30	30	do. del Oro	5,000	5 00	20	20
Penoles	2,500	30.00	2,000	2,000	Soledad	960	5.00	380	380
Restauradora	10,000	.....	20	20	Sorpresa	960	7.50	260	300
Rosario y Anexas	4,800	.....	10	10	Union Hacienda	2,000	5.00	350	340
Guanajuato:					Mexico:				
Angustias	2,400	5.00	280	290	Coronas	500	.....	75	75
Cinco Senores y An	2,000	15.00	400	390	Esperanza y An	5,000	10.00	1,560	1,500
El Oro	500	.....	30	30	Michoacan	.....	.....	.....	.....
do. pref.	2,000	.....	80	80	Luz de Borda ava	4,000	.....	22	18
Guadalupe Hacie'a	10,000	2.00	235	230	Pueblo:				
Trinidad, aviador	2,000	.....	20	15	Tlauningo	2,400	.....	27	28
do. aviada	400	.....	20	15	S. Luis Potosi:				
Zona Minera de Pas	2,400	.....	20	15	Concep. y An	2,400	.....	250	2 0
Hidalgo:					Sta. MariadelaPaz	2,400	10.00	720	840
Amistad y Concord	9,600	1.47	29	27	Zacatecas:				
Arevalo	720	.....	200	200	Asturiana y An	2,500	10.00	50	180
Bartolome de Med	2,000	2.00	65	70	Cabezon	2,400	.....	15	15
Carmen	1,100	7.75	350	300	C'delar. de Pinos	2,500	.....	25	225
Luz de Maravillas	900	.....	120	100	Palma de Somb	2,400	.....	100	80
Pabellon	800	27.39	30	20	.....	.....	.....	.....	.....

PARIS.

Feb. 8.

Name of Company.	Country.	Product.	Capital Stock.	Par value.	Latest divs.	Prices. Op'ning.	Prices. Closing.
			Francs.	Fr.	Fr.	Fr.	Fr.
Acieries de Creusot	France	Steel mfrs	27,000,000	2,000	75.00	1,920.0	1,906.00
" " Firminy	"	" "	3,000,000	500	125.00	3,550.00	3,820 00
" " Fives-Lille	"	" "	12,000,000	500	35.00	502 0	513.00
" " Huta-Bank	Russia	Iron & steel	.....	500	.....	4,575.00	4,585.0
" " la Marine	France	Steel mfrs	20,000,000	500	50.00	1,765.00	1,9.0.00
Anzin	"	Coal	.....	.....	220.00	6,900.00	6,850.00
Boleo	Lower Cal	Copper	.....	500	1.07	2,925.00	2,995.00
Briansk	Russia	Coal & Iron	.....	500	.....	1,237.50	1,257.50
Champ d'Or	S. Africa	Gold	8,375,000	25	3.75	35.50	35.50
Courrieres	France	Coal	600,000	500	70.00	2,940.00	2,950.0
Dombrowa	Russia	Coal	.....	500	12.50	1,105.00	1,120 00
Donetz	"	Steel	.....	.....	.....	1,190.00	1,200.00
Dynamite Centrale	France	Explosives	.....	500	20.00	470.00	473.00
Escombrera-Bleyberg	Spain	Lead	.....	500	35.00	1,345.00	1,319 00
Fraser River	Brit. Col'mb	Gold	250,000	25	.....	7.50	7.50
Huanchaca	Bolivia	Silver	40,000,000	125	5.00	84.75	78.00
Laurium	Greece	Zinc & lead	16,300,000	500	30.00	591.00	593.00
Malfidano	Italy	Zinc	12,500,000	500	50.00	1,384.00	1,375.00
Metaux, Cie. Fran. de	France	Metal d'iers	25,000,000	500	30.00	515.00	532.00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	1,220.00	1,220.00
Napthe Baku	Russia	Petroleum	.....	.....	.....	803.50	792.00
Napthe, Le	"	"	.....	.....	.....	1,360.00	1,300.0
Napthe Nobel	"	"	.....	.....	.....	682.50	691.00
"	parts	"	.....	.....	.....	13,650.00	13,762.00
Nickel	N.Caled'nia	Nickel	10.000.000	250	10.00	430.00	4 5.0
Penarroya	Spain	Coal, etc	.....	500	65.00	2,825.00	2,885.00
Rebecca	Colo'do, U.S.	Gold	5,000,000	25	.....	4.50	4.25
Salines de l'Est	France	Salt	.....	500	6.50	215.00	220.00
Salines du Midi	France	" etc	.....	500	25.00	990.00	995.00
Vielle Montagne	Belgium	Zinc	9,000,000	80	36.00	830.00	820.00

LONDON.

Feb. 9.

Name of Company.	Country.	Authorised capital.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers.
		£	£ s. d.	s.d.		£ s. d.	£ s. d
Alaska Goldfields	Alaska	£300,000	1 0 0	2 1	Mar., 1899	18 9	16 3
*Alaska-Mexican, g	"	200,000	1 0 0	0 4.8	Jan., 1900	17 6	1 2 6
*Alaska-Treadwell, g	"	1,000,000	5 0 0	1 6	"	5 0	5 5 0
Anaconda, c., s	Montana	6,000,000	5 0 0	8 2	Nov., 1899	9 5 0	9 10 0
Arizona Commercial	Mexico	252,500	1 0 0	.....	.....	5 0	7 0
Bonanza, g	Idaho	400,000	1 0 0	6	May, 1899	2 6	5 0
De Lamar, g., s	Colorado	87,500	1 0 0	2 0	June, 1898	1 3	3 9
Elkhorn Priority (New), s	California	80,000	1 0 0	.....	.....	1 0	2 0
Golden Gate, g	Mexico	300,000	1 0 0	2 0	Jan., 1900	1 2 6	1 7 6
Grand Central, g., s	British Col	250,000	1 0 0	1 0	May, 1899	1 3	3 9
Hall Mines, c., s	"	1,000,000	5 0 0	5 0	Nov., 1899	5 0 0	5 5 0
Le Roi, g	Colorado	250,000	1 0 0	2½	Feb., 1900	15 0	1 0 0
*Lillie, g	Montana	660,000	1 0 0	6	Apr., 1899	4 0	5 0
Montana, g., s	Newfoundland	250,000	1 0 0	.....	.....	7 6	12 6
Newfoundland, c	Mexico	800,000	1 0 0	.....	.....	1 0	2 0
Palmarejo & Mexican, g., s	Colorado	1,100,000	1 0 0	2 0	Feb., 1900	2 15 0	3 17 6
Stratton's Independence	Chile	200,000	2 0 0	4 0	Dec., 1899	3 10 0	3 15 0
Copiapo, c	Colombia	140,000	1 0 0	1 6	Oct., 1899	1 13 9	1 16 3
Frontino & Bolivia, g	Brazil	600,000	1 0 0	1 0	Dec., 1899	1 6 3	1 8 9
St. John del Rey, g	Utah	900,000	1 0 0	rts.	Mar., 1898	6 5 0	6 15 0
UtahCon. g (High'ndBoy)	BritishCol'mbia	100,000	1 0 0	.....	.....	1 0 0	1 5 0
Velvet, g	"	300,000	1 0 0	1 0	Nov., 1899	1 2 6	1 5 0
Ymir, g	"	1,50 0,000	1 0 0	rts.	Dec., 1898	15 9	16 3
British Am. Corp	Spain	45,00	3 0 0	12 6	Oct., 1899	8 6 0	9 10 0
Linares, l	Portugal	420,000	2 0 0	5 0	May, 1899	4 5 0	4 19 0
Mason & Barry, c., sul	Spain	1,625,000	5 0 0	1 15	Nov., 1899	48 15 0	49 0 0
Rio Tinto, c	"	1,625,000	5 0 0	2 6	"	1899	5 17 6	6 2 6
" pref	"	1,250,000	2 0 0	1 10	May, 1898	9 15 0	10 0 0
Tharsis, c	Tasmania	975,000	3 0 0	5 0	Jan., 1900	8 17 6	9 2 6
Assoc. Gold Mines	W. Australia	300,000	1 0 0	1 0	Jan., 1900	6 7 6	6 10 0
Broken Hill Prop., s	N.S.Wales	384,00	1 0 0	1 0	Jan., 1900	2 3 9	2 6 3
Great Boulder Prop	W. Australia	1,750,000	2 0 0	6	Dec., 1899	1 15 6	1 16 6
*Hannan's Brownhill, g	"	110,000	1 0 0	5 6	Jan., 1900	10 12 6	10 17 6
Ivanhoe Gold Corp	"	1,000,000	5 0 0	5 0	Jan., 1900	14 12 6	14 17 6
Kalgurlie, g	"	120,000	1 0 0	rts.	Feb., 1899	7 17 6	8 2 6
*Lake View Consols, g	"	250,000	1 0 0	10 0	Feb., 1900	14 0 0	14 5 0
Mt. Lyell M. & R., l, c	Tasmania	975,000	3 0 0	5 0	Jan., 1900	8 17 6	9 2 6
*Mt. Morgan, g	Queensland	1,000,000	1 0 0	7	Feb., 1900	4 17 6	5 0 0
Waihi, g	New Zealand	320,000	1 0 0	2 0	Dec., 1899	9 17 6	10 2 6
Champion Reef, g	Colar Fields	220,000	10 0 0	5 0	Jan., 1900	5 5 0	5 6 3
Mysore Gold, g	"	250,000	10 0 0	4 6	Nov., 1899	5 15 0	5 18 9
Nandydroog, g	"	242,000	1 0 0	2 0	" 1899	3 2 6	3 5 0
Ooregum, g	"	145,000	1 0 0	1 6	Dec., 1899	3 8 9	3 11 3
" pref. g	"	120,000	1 0 0	1 6	" 1899	4 7 6	4 12 6
British S. Af., chartered	So. Africa	5,000,000	1 0 0	rts.	May, 1899	3 6 3	3 8 9
Cape Copper, c	"	600,000	1 0 0	6 6	Jan., 1900	5 0 0	5 2 6
pref	"	150,000	2 0 0	6 6	" 1900	4 10 0	5 0 0
City & Suburban (New), g	Transvaal	1,360,000	4 0 0	8 0	Aug , 1899	4 7 6	4 12 6
Con. Deep Level, g	"	200,000	1 0 0	x all.	June, 1898	1 2 6	1 7 6
Crown Reef, g	"	120,000	1 0 0	18 0	Nov., 1899	12 0 0	12 10 0
De Beers Con., d	Cape Colony	8,950,000	5 0 0	£1	June, 1899	23 15 0	24 0 0
Ferreira, g	Transvaal	90,000	1 0 0	30 0	Aug., 1899	18 0 0	19 0 0

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Author-ized Capital Stock.	Shares Issu'd No.	Par Val	Dividends. Paid, 1900.	Total to Date.	Latest. Date.	Amt.
1	Acacia, g.	Colo.	$1,500,000	1,500,000	$1	.....	.....	.....	.....
2	Æna Con., g.	Cal.	500,000	100,000	5	$60,000	$210,000	Jan. 1900	.15
3	Alabama Coal & Iron, pf	Ala.	2,500,000	25,000	100	43,750	43,750	Feb. 1900	1.75
4	Alamo, g.	Colo.	1,000,000	1,000,000	1	.....	.....	.....	.....
5	Alaska-Mexican, g.	Alask	1,000,000	180,000	5	18,000	447,031	Jan. 1900	.10
6	Alaska-Treadwell, g.	Alask	5,000,000	200,000	25	75,000	4,295,000	Jan. 1900	.37½
7	Alice, g. s.	Mont.	10,000,000	400,000	25	.....	1,075,000	April. 1898	.05
8	Alliance, g.	Colo.	500,000	450,000	1	.....	31,500	Dec. 1899	.07
9	Amalgamated, c.	Mont.	75,000,000	750,000	100	1,500,000	3,000,000	Jan. 1900	2.00
10	Amazon, g.	Colo.	600,000	600,000	1	12,000	32,000	Jan. 1900	.02
11	American Coal	Md.	1,500,000	60,000	25	75,000	802,500	Mar. 1900	1.25
12	American Gold, g. s. c. l.	Colo.	3,000,000	300,000	10	.....	446,000	Dec. 1899	.04
13	Amer. Sm. & Ref., pref.	U. S.	32,500,000	32,500	100	568,750	1,137,500	Jan. 1900	1.75
14	Am. Steel & Wire, pf.	U. S.	40,000,000	400,000	100	700,000	3,500,000	Jan. 1900	1.75
15	Am. Steel & Wire, com.	U. S.	50,000,000	500,000	100	875,000	875,000	April. 1900	1.75
16	American Zinc	Kas.	500,000	5,000	100	10,000	30,000	Feb. 1900	1.00
17	Am. Zinc, Lead & Sm.	Mo.	2,500,000	60,000	25	60,000	180,000	Jan. 9001	1.00
18	Anaconda Copper	Mont.	30,000,000	1,300,000	25	.....	12,150,000	Nov. 1899	2.00
19	Anchoria-Leland, g.	Colo.	600,000	600,000	1	.....	198,000	April. 1899	.03
20	Anglo-Mexican, g.	Mex.	2,001,625	400,230	5	.....	1,728,993	Dec. 1898	.24
21	Apollo Con., g.	Alask	1,000,000	100,000	10	70,000	210,000	Jan. 1900	.07
22	Appie Ellen, g.	Colo.	600,000	600,000	1	.....	25,000	Aug. 1898	.01
23	April Fool	Nev.	500,000	500,000	1	.....	16,000	Oct. 1899	.01
24	Argentum-Juniata, g.	Colo.	1,300,000	650,000	2	.....	156,000	Oct. 1895	.03
25	Argonaut	Cal.	2,000,000	200,000	10	40,000	460,000	Feb. 1900	.10
26	Associated, g.	Colo.	1,250,000	1,250,000	1	.....	84,000	Feb. 1899	.01
27	Atlantic, c.	Mich.	1,000,000	40,000	25	80,000	860,000	Feb. 1900	2.00
28	Aurora, l.	Mich.	2,500,000	100,000	25	.....	890,000	June. 1899	.50
29	Bald Butte	Mont.	250,000	250,000	1	.....	769,648	Dec. 1899	.03
30	Bankers, g.	Colo.	1,250,000	1,250,000	1	.....	.....	.....	.....
31	Bankok Cora Belle, s.	Colo.	600,000	600,000	1	.....	106,000	July. 1896	.01
32	Battle Mtn. Con., g.	Colo.	2,500,000	2,500,000	1	.....	.....	.....	.....
33	Big Four, g.	Colo.	1,000,000	1,000,000	1	.....	.....	.....	.....
34	Big Seven, g.	Cal.	100,000	100,000	1	.....	6,000	April 1898	.03
35	Big Six, g. s.	Colo.	500,000	500,000	1	.....	15,000	May. 1898	.00½
36	Boston-Aurora, pref.	Mo.	800,000	32,000	25	10,560	39,600	Feb. 1900	.17
37	Boston & California	Cal.	600,000	600,000	1	.....	72,000	June. 1899	.06
38	Boston & Colo. Smelting	Colo.	750,000	15,000	50	11,250	281,250	Jan. 1900	.75
39	Boston Duenweg, z.	Mo.	1,000,000	40,000	10	8,000	40,000	Feb. 1900	.10
40	Boston Get There, z.	Mo.	250,000	22,500	10	4,500	15,750	Feb. 1900	.10
41	Boston-Little Circle, z.	Mo-K.	1,000,000	100,000	10	20,000	100,000	Feb. 1900	.10
42	Boston & Mont. Con.	Mont.	3,750,000	150,000	25	1,200,000	15,700,000	Feb. 1900	8.00
43	Boston Providence, z.	Mo.	150,000	15,000	10	1,500	9,000	Feb. 1900	.05
44	Boston, q.	Cal.	1,000,000	100,000	10	10,000	20,000	Jan. 1900	.10
45	Boston Sunflower, z.	Mo.	150,000	15,000	10	.....	4,500	Oct. 1899	.30
46	Breece, l.	Colo.	5,000,000	200,000	25	10,000	80,000	Feb. 1900	.05
47	Buffalo Hump	Idaho	1,000,000	1,000,000	1	10,000	10,000	Feb. 1900	.01
48	Bullion-Beck & Champ.	Utah.	1,000,000	100,000	10	20,000	2,458,400	Feb. 1900	.10
49	Bunker Hill & Sullivan.	Idaho	3,000,000	300,000	10	42,000	843,000	Feb. 1900	.07
50	Calumet & Hecla, c.	Mich.	2,500,000	100,000	25	.....	66,850,000	Dec. 1899	20.00
51	Cambria Steel	Pa.	16,000,000	320,000	50	160,000	1,280,000	Feb. 1900	.50
52	Cariboo-McKinney, g.	B.Col	800,000	800,000	1	.....	311,965	June. 1899	.01½
53	Centen'l-Eureka, g.s.l.c.	Utah.	5,000,000	100,000	25	.....	2,150,000	Aug. 1899	.50
54	Central Lead, l.	Mo.	1,000,000	10,000	100	10,000	152,000	Feb. 1900	.50
55	Champion, g. s.	Cal.	340,000	34,000	10	.....	321,700	Nov. 1899	.25
56	Charleston, p. l.	S. C.	1,000,000	10,000	100	.....	200,000	June. 1899	2.00
57	Colo. Fuel and Iron	Colo.	23,000,000	130,000	100	.....	137,500	Feb. 1893	1.25
58	Colo. Fuel and Iron, pf.	Colo.	2,000,000	200,000	100	160,000	1,625,000	Feb. 1900	8.00
59	Colonial, l.	Mo.	1,000,000	1,000,000	1	.....	10,000	Aug. 1899	.01
60	Colorado Smelting	Mont.	1,000,000	100,000	10	.....	1,945,000	Jan. 1899	1.00
61	Commodore	Colo.	1,200,000	1,200,000	1	.....	432,000	Jan. 1899	.04
62	Commonwealth, z., pref.	Mo.	500,000	100,000	5	10,000	30,000	Feb. 1900	.05
63	Consolidated Gold Mines	Colo.	1,000,000	1,000,000	1	10,000	20,000	Jan. 1900	.01
64	Consolidation Coal	Md.	10,250,000	102,500	100	205,000	5,921,650	Feb. 1900	2.00
65	Con. Tiger & Poorman.	Idaho	1,000,000	1,000,000	1	.....	20,000	Dec. 1898	.02
66	Cons. Zinc & Lead, pf.	Mo.	400,000	400,000	1	8,000	8,000	Jan. 1900	.20
67	Continental, z.	Mo.	1,500,000	150,000	10	.....	.....	.....	.....
68	Cresus, g.	Cal.	1,000,000	100,000	10	.....	49,000	Dec. 1899	.10
69	Cresus, g.	Colo.	2,000,000	2,000,000	1	.....	233,000	June. 1898	.01
70	Crowned King, g. s. l.	Ariz	6,000,000	600,000	10	.....	242,760	May. 1899	.02
71	Dalton & Lark, g. s. l.	Utah.	2,500,000	2,500,000	1	.....	87,500	Mar. 1896	.00½
72	Daly	Utah.	3,000,000	150,000	20	.....	2,925,000	Mar. 1897	.25
73	Daly West	Utah.	3,000,000	150,000	20	75,000	195,000	Feb. 1900	.25
74	Damon, g.	Colo.	2,000,000	2,000,000	1	.....	.....	.....	.....
75	Deadwood-Terra, g.	S. D.	5,000,000	200,000	25	.....	1,350,000	May. 1898	.15
76	Deer Trail Con.	Wash	3,000,000	3,000,000	1	.....	55,000	Dec. 1899	.00½
77	De Lamar, g. s.	Idaho	2,000,000	400,000	5	.....	2,346,000	May. 1899	.12
78	Della S., g.	Colo.	1,000,000	1,000,000	1	.....	60,000	Jan. 1897	.01
79	Delta, l. z.	Mo.	100,000	100,000	1	1,790	5,890	Feb. 1900	.01
80	Doe Run, l.	Mo.	500,000	5,000	100	5,000	95,000	Feb. 1900	.50
81	Dutch, g.	Cal.	1,500,000	150,000	10	.....	39,000	Feb. 1898	.04½
82	Eldorado, g.	Cal.	1,000,000	100,000	10	.....	10,000	July. 1899	.10
83	Elkhorn, New, s. l.	Colo.	437,500	87,500	5	.....	1,325,000	June. 1898	.48
84	Elkton Con., g.	Colo.	1,250,000	1,125,000	1	.....	720,711	Dec. 1899	.03
85	El Paso, g. s.	Colo.	650,000	650,000	1	.....	12,393	Jan. 1898	.01
86	Empire State-Idaho.	Idaho	1,000,000	98,514	10	59,108	377,146	Feb. 1900	.30
87	Enterprise, s. l.	Colo.	500,000	500,000	1	.....	900,000	Sept. 1898	.05
88	Fanny Rawlings, g. s.	Colo.	1,000,000	1,000,000	1	.....	20,000	Aug. 1899	.01
89	Federal Steel, pf.	U. S.	100000,000	532,610	100	1,597,830	4,793,490	Jan. 1900	3.00
90	Federal Steel, com.	U. S.	100000,000	464,843	100	1,743,161	1,743,161	Mar. 1900	2.50
91	Fern, g.	B.Col	200,000	200,000	1	.....	10,000	Jan. 1898	.05
92	Ferris-Haggarty, c.g.s.	Wyo.	1,000,000	1,000,000	1	.....	5,000	Mar. 1899	.00½
93	Findley, g.	Colo.	1,250,000	1,250,000	1	.....	.....	.....	.....
94	Florence, s.	Mont.	2,500,000	500,000	5	.....	187,530	Dec. 1899	.05
95	Frisco Con., l. s.	Idaho	2,500,000	500,000	5	.....	920,000	Nov. 1899	.25
96	Galena, s. l. g.	Utah.	1,000,000	100,000	10	.....	71,000	Sept. 1897	.05
97	Garfield Con., g.	Colo.	1,200,000	1,200,000	1	.....	34,000	May. 1899	.01
98	Geyser-Marion, g.	Utah.	1,500,000	300,000	5	.....	96,000	Sept. 1898	.02
99	Gold Coin of Victor, g.	Colo.	1,000,000	1,000,000	1	40,000	400,000	Feb. 1900	.02
100	Gold & Globe, g.	Colo.	750,000	750,000	1	.....	51,625	July. 1898	.00½
101	Gold King, g.	Colo.	1,000,000	1,000,000	1	30,000	120,000	Jan. 1900	.03
102	Gold Sovereign, g.	Colo.	3,000,000	3,000,000	1	.....	.....	.....	.....
103	Golden Cycle, g.	Colo.	1,000,000	200,000	5	20,000	278,500	Feb. 1900	.05
104	Golden Eagle, g.	Colo.	500,000	500,000	1	.....	20,000	Nov. 1899	.01
105	Golden Fleece, g. s.	Colo.	600,000	600,000	1	.....	569,480	Feb. 1897	.01
106	Golden Reward, g.	S. D.	1,000,000	100,000	10	.....	155,000	Feb. 1898	.15
107	Golden Star, g.	Ont.	1,000,000	1,000,000	1	.....	41,000	July. 1899	.01
108	Gould, g.	Colo.	1,000,000	1,000,000	1	.....	.....	.....	.....
109	Grafton, g.	Colo.	1,000,000	1,000,000	1	.....	10,000	Oct. 1899	.01
110	Grand Central, g.	Utah.	250,000	250,000	1	.....	666,250	Sept. 1899	.24
111	Grand Gulch	Utah.	250,000	240,000	1	4,800	4,800	Feb. 1900	.01
112	Grass Valley Expl	Cal.	100,000	30,000	2	15,000	45,000	Feb. 1900	.25
113	Gwin, g.	Cal.	1,000,000	20,000	50	10,000	111,500	Feb. 1900	.25
114	Hall Mines, Ltd	B.Col	1,500,000	250,000	5	.....	120,000	May. 1899	.24
115	Hecla Con.	Mont	1,500,000	30,000	50	.....	2,190,000	Dec. 1898	.50
116	Hidden Treasure, g.	Cal.	500,000	360,000	1	.....	3,600	July. 1899	.01
117	Holy Terror, g.	S. D.	500,000	500,000	1	.....	167,000	Dec. 1899	.01
118	Homestake, g.	S. D.	21,000,000	210,000	100	210,000	8,353,750	Feb. 1900	.50
119	Horn-Silver, g. s. c. sp. l.	Utah.	10,000,000	400,000	25	.....	5,250,000	Mar. 1899	.05
120	Ida May, g.	Colo.	500,000	500,000	1	.....	.....	.....	.....
121	Idaho, s. l.	B.Col	500,000	500,000	1	.....	292,000	Jan. 1899	.05¾

	Name and Location of Company.		Author-ized Capital Stock.	Shares Issu'd No.	Par Val	Dividends. Paid, 1900.	Total to Date.	Latest. Date.	Amt.
122	Independence Town & M	Colo.	$1,225,000	1,225,000	$1	.....	.....	.....	.....
123	International, z.	Mo.	1,000,000	1,000,000	1	$10,000	$10,000	Feb. 1900	.01
124	Iowa, g.	Colo.	1,000,000	1,000,000	1	7,500	97,500	Jan. 1900	.00¾
125	Iron Mountain, g. s. l. i.	Mont.	5,000,000	500,000	10	.....	507,500	April. 1898	.02
126	Iron Silver, s. l.	Colo.	10,000,000	500,000	20	.....	2,500,000	April. 1889	.20
127	Isabella, g.	Colo.	2,250,000	2,250,000	1	.....	540,000	Dec. 1899	.03
128	Jack Pot, g.	Colo.	1,250,000	1,250,000	1	.....	150,000	Dec. 1899	.06
129	Jamison	Cal.	3,900,000	390,000	10	.....	50,700	April. 1899	.10
130	Keystone, g.	Colo.	1,500,000	1,500,000	1	.....	.....	.....	.....
131	Klondike Bonanza, Ltd.	Klond	750,000	52,750	5	.....	12,000	Aug. 1899	.24
132	Lake Superior Iron	Mich.	2,100,000	84,000	25	.....	2,132,000	Feb. 1899	1.00
133	Last Chance, s. l.	B.Col	500,000	500,000	1	.....	45,000	Apr. 1899	.05
134	Last Dollar, g.	Colo.	1,500,000	1,500,000	1	30,000	60,000	Feb. 1900	.02
135	Le Roi, g.	B.Col	5,000,000	200,000	5	.....	1,305,000	Nov. 1899	1.20
136	Lexington, g.	Colo.	1,500,000	1,500,000	1	.....	.....	.....	.....
137	Lillie, g.	Colo.	1,250,000	250,000	5	11,250	324,110	Feb. 1900	.05
138	Little Tiger, g.	Cal.	500,000	500,000	1	15,000	47,500	Feb. 1900	.01½
139	Mammoth, g. s. c.	Utah.	10,000,000	400,000	25	40,000	1,650,000	Jan. 1900	.10
140	Marion Con.	Colo.	5,000,000	500,000	10	.....	300,000	May. 1899	.01
141	Mary McKinney, g.	Colo.	1,000,000	1,000,000	1	30,000	60,000	Jan. 1900	.03
142	Maryland Coal, pf.	Md.	1,885,005	18,850	100	.....	546,619	Dec. 1899	3.00
143	Matoa, g.	Colo.	1,000,000	1,000,000	1	.....	25,000	Dec. 1898	.02½
144	Mead, g.	Cal.	200,000	200,000	1	.....	160,000	Dec. 1899	.10
145	Mercur, g.	Utah.	5,000,000	200,000	25	50,000	1,416,000	Jan. 1900	.25
146	Minnesota Iron	Minn.	16,500,000	165,000	100	.....	4,735,000	Oct. 1898	1.50
147	Missouri Zinc Fields, pf.	Mo.	400,000	16,000	25	5,370	26,682	Feb. 1900	.17
148	Modoc, g. s.	Colo.	500,000	500,000	1	10,000	155,000	Feb. 1900	.01
149	Mollie Gibson, s. l.	Colo.	5,000,000	1,000,000	5	.....	4,080,000	Jan. 1895	.05
150	Montana, Ltd., g. s.	Mont.	3,300,000	657,128	5	.....	453,700	April. 1899	.12
151	Montana Ore Purchas'g.	Mont.	2,500,000	80,000	25	80,000	1,440,000	Feb. 1900	1.00
152	Montreal, g.	Colo.	1,000,000	1,000,000	1	.....	.....	.....	.....
153	Monument, g.	Colo.	300,000	300,000	1	.....	18,124	Nov. 1899	.01
154	Moon-Anchor Con., g.	Colo.	1,750,000	600,000	1	.....	261,000	Nov. 1898	.07½
155	Moose, g.	Colo.	600,000	600,000	1	.....	186,000	Feb. 1896	.01
156	Morning Star Drift, g.	Cal.	240,000	2,400	100	.....	751,890	Oct. 1899	3.00
157	Morse, g.	Colo.	1,250,000	1,250,000	1	.....	213,150	May. 1899	.12
158	Mountain Beauty, g.	Colo.	2,000,000	2,000,000	1	.....	.....	.....	.....
159	Mt. Rosa, g.	Colo.	1,000,000	1,000,000	1	.....	90,000	Dec. 1899	.04
160	Mt. Shasta	Cal.	100,000	20,000	5	.....	6,000	May. 1899	.30
161	Moulton	Mont.	2,000,000	400,000	5	.....	500,000	Oct. 1893	.05
162	Mountain Copper.	Cal.	6,250,000	250,000	25	.....	1,173,750	Oct. 1899	2.16
163	Napa Con., q.	Cal.	700,000	100,000	7	20,000	1,060,000	Jan. 1900	.20
164	National Lead, com.	U. S.	15,000,000	149,054	100	149,054	1,341,486	Mar. 1900	1.00
165	National Lead, pf.	U. S.	15,000,000	149,040	100	260,820	8,607,060	Mar. 1900	1.75
166	National Salt, pf.	U. S.	5,000,000	24,000	100	42,000	126,000	Jan. 1900	1.75
167	National Steel, pf.	U. S.	27,000,000	270,000	100	.....	1,890,000	Dec. 1899	1.75
168	New Central Coal.	Md.	1,00,000	50,000	20	.....	470,000	April. 1899	.40
169	New Idria, q.	Cal.	500,000	100,000	5	20,000	190,000	Jan. 1900	.20
170	New York Zinc.	Mo.	700,000	28,000	25	14,000	35,000	Feb. 1900	.25
171	N. Y. & Hon Rosario, s. g.	C. A.	1,500,000	150,000	10	30,000	1,190,000	Feb. 1900	.10
172	North Star Mines of N. J.	Cal.	5,000,000	250,000	10	.....	50,000	Nov. 1899	.20
173	Nugget	Colo.	1,000,000	1,000,000	1	.....	35,000	Aug. 1898	.00½
174	Okanogan, g.	Wash	62,500	1,250,000	05	.....	3,125	Oct. 1899	.00¼
175	Ontario, s. l.	Utah.	15,000,000	150,000	100	45,000	13,617,500	Jan. 1900	.30
176	Ophir, g.	Col.	700,000	700,000	1	.....	.....	.....	.....
177	Orphan Belle, g.	Colo.	1,000,000	1,000,000	1	.....	197,899	Dec. 1899	.09
178	Original Empire, g.	Cal.	5,000,000	50,000	100	.....	500,000	May. 1899	1.00
179	Osceola, c.	Mich.	2,500,000	93,000	25	.....	3,090,500	Dec. 1899	3.00
180	Pacific Coast Borax.	Cal.	2,000,000	20,000	100	100,000	522,500	Dec. 1900	5.00
181	Parrot, c.	Mont.	2,300,000	230,000	10	345,000	3,380,898	Jan. 1900	1.50
182	Pennsylvania Coal.	Pa.	5,000,000	100,000	50	.....	4,050,000	May. 1899	8.00
183	Pennsylvania Con.	Cal.	5,150,000	51,500	100	10,300	146,475	Feb. 1900	.10
184	Pennsylvania Steel, pf.	Pa.	1,500,000	15,000	100	26,250	52,500	Jan. 1900	1.75
185	Petro, g.	Utah.	1,000,000	200,000	5	.....	32,000	Oct. 1899	.02½
186	Pharmacist Con., g.	Colo.	1,500,000	1,500,000	1	.....	84,000	Jan. 1898	.01
187	Pioneer, g.	Cal.	1,000,000	100,000	10	.....	62,500	Mar. 1899	.12½
188	Pittsburg Coal, pf.	Pa.	32,000,000	308,000	100	539,000	539,000	Jan. 1900	1.75
189	Plumas Eureka, g.	Cal.	1,406,250	140,625	10	.....	2,713,169	Oct. 1896	.12
190	Portland, g.	Colo.	3,000,000	3,000,000	1	150,000	2,707,080	Feb. 1900	.02
191	Princess, g.	Colo.	1,000,000	1,000,000	1	.....	40,000	May. 1896	.01
192	Prince Albert, g.	Colo.	3,000,000	3,000,000	1	.....	.....	.....	.....
193	Queen Bess Propr., s. l.	B.Col	500,000	100,000	5	.....	25,000	July. 1899	.12½
194	Quicksilver, pref.	Cal.	4,300,000	43,000	100	.....	1,845,411	May. 1899	.50
195	Quincy, c.	Mich.	2,500,000	100,000	25	500,000	11,570,000	Feb. 1900	5.00
196	Rambler—Cariboo, s. l.	B.Col	1,000,000	1,000,000	1	.....	60,000	Dec. 1899	.01
197	Raven, g.	Colo.	1,500,000	1,000,000	1	20,000	89,500	Feb. 1900	.01
198	Reco, s. l.	B.Col	1,000,000	1,000,000	1	.....	297,500	Jan. 1898	.10
199	Republic Con., g.	Wash	3,500,000	3,500,000	1	70,000	347,500	Feb. 1900	.01
200	Republic Iron & Steel, pf	U. S.	25,000,000	212,570	100	.....	843,995	Dec. 1899	1.75
201	Reward, g.	Cal.	1,000,000	100,000	10	.....	20,000	Aug. 1899	.20
202	Russell-Irwin, z.	Mo.	250,000	25,000	10	.....	15,000	Oct. 1899	.10
203	Sacramento, g.	Utah.	5,000,000	1,000,000	5	.....	138,000	Oct. 1899	.00½
204	St. Joseph, l.	Mo.	3,000,000	300,000	10	.....	2,897,000	Sept. 1899	.50
205	Seventy-Six, g. s.	Colo.	1,000,000	200,000	5	.....	2,950	Mar. 1898	.01
206	Santa Rosalia, g.s.	Cal.	100,000	100,000	1	.....	130,000	Oct. 1899	.05
207	Silver King, g. s. l.	Utah.	3,000,000	150,000	20	150,000	2,600,000	Feb. 1900	.50
208	Small Hopes, s.	Colo.	5,000,000	250,000	20	.....	3,325,000	Feb. 1899	.10
209	Smuggler, s. l. z.	Colo.	1,000,000	1,000,000	1	.....	1,210,000	Dec. 1899	.02
210	South Eureka, g.	Cal.	1,500,000	300,000	5	.....	12,000	May. 1898	.04
211	South Swansea, s. l.	Utah.	150,000	150,000	1	.....	165,000	Oct. 1899	.05
212	Specimen. g.	Colo.	1,200,000	1,200,000	1	.....	.....	.....	.....
213	Squaw Mountain, g.	Colo.	2,000,000	2,000,000	1	.....	10,000	Nov. 1899	.00½
214	Standard Con., g. s.	Cal.	2,000,000	200,000	10	20,000	3,919,226	Feb. 1900	.10
215	Standard	Idaho	500,000	500,000	1	.....	1,745,000	April. 1899	.06
216	Stratton's Independ'ce.	Colo.	5,500,000	1,000,000	5	480,000	1,440,000	Feb. 1900	.48
217	Strong, g.	Colo.	2,500,000	2,500,000	1	50,000	900,000	Feb. 1900	.01
218	Swansea, s. l.	Utah.	500,000	100,000	5	15,000	216,500	Feb. 1900	.05
219	Tamarack, c.	Mich.	1,500,000	60,000	25	.....	6,270,000	Dec. 1899	6.00
220	Temonj, g.	Colo.	1,000,000	1,000,000	1	.....	.....	.....	.....
221	Tomboy, g.	Colo.	1,500,000	300,000	5	.....	812,000	Dec. 1899	.24
222	Tornado, g.	Colo.	1,000,000	1,000,000	1	.....	.....	.....	.....
223	Union, g.	Colo.	1,250,000	1,250,000	1	.....	82,744	June. 1896	.01
224	Union Leasing	Colo.	1,000,000	1,000,000	1	.....	336,000	July. 1895	.04
225	United, z. l., pref.	Mo.	1,000,000	40,000	25	20,000	60,000	Jan. 1900	.50
226	United Verde, c.	Ariz.	3,000,000	300,000	10	300,000	1,162,500	Feb. 1900	.50
227	Utah	Utah.	1,000,000	100,000	10	.....	179,000	Jan. 1899	.02
228	Victor, g.	Colo.	1,000,000	200,000	5	.....	1,155,000	Dec. 1898	.50
229	Vindicator, Con., g.	Colo.	1,500,000	1,065,000	1	53,250	357,750	Jan. 1900	.05
230	War Eagle Con.	B.C.	2,000,000	1,750,000	1	52,500	545,250	Feb. 1900	.01½
231	West. Mine Enterprise.	Mont.	500,000	120,000	1	.....	48,680	Jan. 1898	.20
232	What Cheer, z.	Mo.	225,000	22,500	10	4,500	9,000	Feb. 1900	.20
233	Wolverine, c.	Mich.	1,500,000	60,000	25	.....	270,000	Oct. 1899	1.50
234	Work, g.	Colo.	1,500,000	1,500,000	1	.....	.....	.....	.....
235	Yellow Aster, g.	Cal.	1,000,000	100,000	10	40,000	363,789	Feb. 1900	.20
236	Ymir, g.	B.Col	1,000,000	125,000	5	.....	30,000	Nov. 1899	.24

G., Gold. S., Silver. L., Lead. C., Copper. Z., Zinc. This table is corrected up to Feb. 17. Correspondents are requested to forward changes or additions.

CHEMICALS, MINERALS, RARE ELEMENTS, ETC.—CURRENT PRICES.

	Cust. Meas.	Price.
Abrasives—		
Carborundum, f.o.b.		
Niagara Falls grains..	lb.	$0.10
Powd., F. FF. FFF..	"	.08
Minute No. 1.....	"	.15
No. 15.....	"	1.00
Corundum, N. C.....	"	.07@.10
Chester.....	"	.04½@.05
Emery, Turkish flour..	"	.03
Grains.....	"	.05
Naxos flour.....	"	.03
Grains.....	"	.05
Chester flour.....	"	.03
Grains.....	"	.05
Peekskill flour.....	"	.01¾
Grains.....	"	.02½
Crude, Kuluk, best...lg. ton		18.50
Levant, " ...		22.00
Naxos (Greek) best "		26.00
Pumice Stone, Am. powd.	lb.	.01½@.02
Italian, powdered....	"	.01½
Lump, per quality....	"	.04@.40
Rottenstone, ground....	"	.02½@.03
Lump, per quality....	"	.05@.14
Rouge.....	"	.17@.30
Acids—		
Acetic, 30% pure.....100 lbs.		2.75@4.00
30% ch. pure.....	"	6.00@8.00
80% pure.....	"	7.50@9.50
Benzoic, English.....	oz.	.12@.12¼
German.....	lb.	.46@.47
Boracic, pure cryst....	"	.11
Powdered	"	.11½
Carbolic, crude, 60%....	gal.	.35
Cryst, 37%.....	lb.	.38
Liquid, 95%.....	gal.	.42
Carbonic, liquid.....	lb.	.12½
Chromic, crude.....	"	.20
Chem. pure.....	"	.50
Absol. ch. pure.....	"	1.75
Hydrochloric, ch. pure.	"	.07
Hydrofluoric, 30%.....	"	.03@.04½
48%.....	"	.05@.06
Best.....	"	.25
Nitric, chem. pure.....	"	.09
Sulphuric, 98%.....	"	.01½@.02
Chem. pure.....	"	.07
Tartaric, cryst.....	"	.32
Powder.....	"	.32½
Alcohol—Grain.....	gal.	2.40
Refined wood, 95@97%	"	.90@.95
Purified.....	"	1.50
Alum—Lump.....100 lbs.		1.75
Ground.....	"	1.85
Chrome, com'l.....	"	3.50
Aluminum—Nitrate....	lb.	1.50
Oxide, com'l, common..	"	.06½
Best.....	"	.20
Pure.....	"	.80
Hydrated.....	"	.05
Sulphate, pure.....	"	1.50
Com'l	"	.01¼@.01½
Ammonia—Aqua, 16° ..	"	.04½
18°.....	"	.05
20°.....	"	.05½
26°.....	"	.07½
Ammonium—Bromide, p'r	"	.52@.53
Carbonate lump.....	"	.08¾@.08¾
Powdered.....	"	.09¾@.09¾
Muriate, gran., white...	"	.06½@.06¾
Lump.....	"	.08¼
Gray, gran.....	"	.06½
Nitrate, white, pure (99%)	"	.10½
Phosphate, com'l.....	"	.12@.15
Chem. pure..	"	.60
Antimony—Glass	"	.30@.40
Needle, lump.....	"	.05½@.06
Powdered, ordinary..	"	.05¾
Best.....	"	.08½
Oxide, com'l white, 95%.	"	.09½
Com'l white, 99%.....	"	.12
Com'l gray	"	.07@.08
Sulphuret, com'l.....	"	.16
Arsenic—White.....	"	.04¾
Red	"	.08
Asphaltum—		
Ventura, Cal.....sh. ton		32.00
Cuban, crude.....	lb.	.01½@.03¼
Egyptian, crude.....	"	.06
Trinidad, refined. .....lg. ton		30.00@35.00
San Valentino .....lg. ton		15.00
Gilsonite, Utah, ordinary	lb.	.03
Select.....	"	.03¾
Barium—Carbonate.		
Lump, 80@90% ....sh. ton		25.00@27.50
92@98%.....	"	26.00@29.00
Powdered, 80@90%...	lb.	.01¾@02
Chloride, com'l.....	"	.02@.02¼
Chem. pure cryst	"	.05
Nitrate, powdered	"	.05½
Oxide, com'l, hyd.cryst	"	.18@.22
Hydrated, pure cryst.	"	.25
Pure, powd.....	"	.27
Sulphate.....	"	.01
Barytes—Am. Cr., No. 1. sh.ton		9.00@10.00
No. 2.....	"	8.00@8.25
No. 3.....	"	7.75@8.00
Am. Floated.....	"	15.00@18.00
Foreign.....lg. ton		18.00@20.00
Bauxite—Ga. mines: 1st grade.....lg. ton		5.00@5.10
Second grade.....	"	4.00@4.50
Ala., f.o.b., 1st grade....	"	5.00
Second grade.....	"	3.85
Benzole—90%.....	gal.	1.00@1.10
Bismuth—Oxide, hydr..	lb	2.25
Subnitrate.....	"	1.20
Bitumen, "B".....	"	.03½
"A".....	"	.05
Bone Ash	"	02¾@.03½
Borax—Cryst. and pow'd	"	.07@.07¼
Calcined	"	.25
Bromine—Bulk.....	"	.45
Cadmium—Metallic....	"	1.50@2.00
Sulphide.....	"	2.00@3.00
Sulphate.....	"	2.00@2.50
Acetate, pure white.....100 lbs.		$1.00

	Cust. Meas.	Price.
Calcium—		
Acetate, gray.....100 lbs.		$1.55
" brown..... "		1.10
Carbide, in ton lots, f. o. b. Niagara Falls, N.Y. sh. ton		75.00
Carbonate, ppt..... lb.		.05
Chloride, com'l.....100 lbs.		.95
Best ..... "		1.90
Sulphite..... lb.		.05
Cement—		
Portland, Am., 400 lbs.. bbl.		1.50@2.00
Foreign..... "		1.75@2.50
"Rosendale," 300 lbs... "		.90
Sand cement, 400 lbs... "		1.55@1.95
Slag cement, imported. "		1.65
Ceresine—		
Orange and Yellow..... lb.		.11
White.....		.12.@.13½
Chalk—Lump, bulk.....sh. ton		2.15@2.25
Precipitated..... lb.		.05@.05½
French..... .....100 lbs.		.30@.35
Chlorine—Liquid..... lb.		.24
Water..... "		.15
Chrome Ore—		
(50% chrome) ex ship....lg. ton		20.00@21.00
Sand..... "		35.00
Clay, China—Am. com., ex-dock, N. Y.....lg ton		7.70
Am. best, ex-dock, N. Y. "		8.70
English, common..... "		11.50
Best grade..... "		16.50
Fire, ground, f.o.b. Jersey City, N. J.... ...sh. ton		4.00@5.00
Slip Clay.....		6.00
Coal Tar Pitch..... gal.		.08
Cobalt—Carbonate..... lb.		1.50
Nitrate ..... "		1.30
Oxide—Black..... "		2.00
Gray..... "		2.50
Smalt, blue ordinary "		.20
Best..... "		.30
Chem. pure..... "		5.00
Copperas.....100 lbs.		.72½
Copper—Carbonate..... lb.		.18@.20
Chloride..... "		.25
Nitrate, crystals..... "		.25
Oxide..... "		.19@.20
Cream of Tarter—crys. "		.32¼
Granulated..... "		.32¾
Powdered ..... "		.32¾
Cryolite..... "		.06½
Explosives—		
Blasting powder, A..... "		.10½
Blasting powder, B..... "		.05@.05½
"Rackarock," A..... "		.25
"Rackarock," B..... "		.18
Judson R.R. powder.... "		.10
Dynamite (20% nitro-glycerine)..... "		.13
(30% nitro-glycerine)... "		.14
(40% nitro-glycerine).. "		.15
(50% nitro-glycerine).. "		.17
(60% nitro-glycerine).. "		.19
(75% nitro-glycerine).. "		.22
Glycerine for nitro (32 2-10°Be.)..... "		.16½
Feldspar—Ground.....sh. ton		6.50@7.75
Flint—(See Silica).		
Fluorspar, f. o. b. mines—		
Am. lump, 1st grade... "		7.50
2d gr..... "		6.50
Gravel..... "		6.00
Crushed..... .... "		5.75
Ground, ex. fine ..... "		19.00
2d gr..... "		15.00
Foreign, lump..... "		8.00@12.00
Ground..... "		11.50@14.00
Fuller's Earth—Lump.100 lbs.		.75
Powdered..... "		.85
Refined lump..... "		1.25
Ganister Rock.....lg. ton.		6.50
Graphite—(See Plumbago).		
Gypsum—Am. gr'd.....sh. ton		8.00@8.50
Fertilizer..... "		7.00
Rock.....lg. ton		4.00
English and French..... "		14.00@16.00
Infusorial Earth—Ground. American, best..... "		20.00
French..... "		37.50
German..... "		40.00
Iodine—Crude.....100 lbs.		2.45
Resublimed..... "		2.85
Iron—Chromate..... lb.		.03@.10
Muriate ..... "		.05
Nitrate, com'l..... "		.01¼@.01¾
True..... "		.03¾@.04
Oxide, pure copperas col "		.05@.10
Purple-brown..... "		.02
Venetian red..... "		.01@.01½
Scale ..... "		.01@.03
Kaolin—(See Clay, China).		
Kryolith—(See Cryolite.)		
Lead—Acetate, white ... lb.		.07@.07¾
Com'l, broken..... "		.06½@.07½
Brown..... "		.05½@.06
Nitrate, com'l..... "		.06½@.07
Chem. pure..... "		.35
Lime—Bldg., ab. 250 lbs bbl.		.90
Finishing..... "		1.00
Magnesite—		
Crude, lump (95%) Greece lg. ton		7.25
German (85%)..... "		12.00
Calcined, 600° C. (Greece) "		15.00
1,000° C. (Greece) "		18.50
3,000° F. (Greece).. "		21.00
Domestic, soft.....sh. ton		12.00@15.00
Bricks, all magnesite.. M.		185 00
Magnesite and chrome. "		226.00
Magnesium—		
Metallic, ingots (Ger).. kg.		5.95@6.90
Powdered (Ger.)..... "		6.19
Ribbon or wire (Ger.). "		10.00
Carbonate, light, fine pd lb.		.03¾@.04
Blocks..... "		.06@.09
Chloride, com'l..... "		.01¾
Fused..... "		.20
Nitrate..... "		.60

	Cust. Meas.	Price.
Manganese—		
Crude, pow'd		
70@75% binoxide.... lb.		.01¼@.01½
75@85% binoxide.... "		.01½@.02½
85@90% binoxide.... "		.02½@.03¼
90@95% binoxide.... "		.02¾@.05½
Carbonate..... "		.16@.20
Chloride..... "		.04
Ore, 50%..... unit		.22@.22½
Marble—Flour .....sh. ton		5.50@8.00
Mercury—		
Bichloride ..... lb.		.74
Mica—N. Y. gr'nd. coarse "		.03@.05
Fine..... "		.06@.07
Sheets, 1½x3 in..... "		.60
8x10 in..... "		13.00
Mineral Wool—		
Slag, ordinary.....100 lbs.		.90
Selected..... "		1.40
Extra ..... "		3.00
Rock, ordinary.....sh. ton		32.00
Selected.....100 lbs.		2.50
Extra ..... "		5.00
Monazite—92%.....sh. ton		140.00
Nickel—Oxide, bl'k No. 1 lb.		1.00
Black No. 2..... "		.60
Green, No. 1..... "		1.00
No. 2..... "		.60
Oils—Black, reduced 29 gr.:		
25@30 cold test..... gal.		.11@.11½
15. cold test..... "		.12@.12½
Zero..... "		.13@.14
Summer..... "		.10½@.11
Cylinder, dark steam ref "		.10@.15
Dark filtered..... "		.13@.18
Light filtered..... "		.15@.17½
Extra cold test..... "		.23@.27
Gasolene, 86° @ 90°..... "		.16@.21
Naphtha, crude 68@72° "		10.65
"Stove "..... "		.13
Linseed, domestic raw.. "		.50
Boiled ..... "		.55
Calcutta, raw..... "		.65
Graphite, lubricating, Am. dry..... lb.		.10
In oil..... "		.12
Axle grease..... "		.08¼@.10
Wood grease..... "		.05@.06
Ozokerite—Foreign ..... "		.08
Paints and Colors—		
Benzine, Sumatra..... "		.35@.40
Marbled..... "		.27@.28
Chrome green, common "		.05@.06
Extra..... "		.12@.15
Yellow, common..... "		.10
Best..... "		.25
Silica Graphite, thick.. "		.12
Thinned..... gal.		1.15
Lampblack—Com'l..... lb.		.03@.05
Refined..... "		.08@.10
Calcined..... "		.12@.20
Fine spirit..... "		.20@.35
Litharge, Am. powd.. "		.06½@.07
English flake..... "		.09¼@.09¾
Glassmakers, Foreign "		.06¼@.08
Metallic, brown.....sh. ton		16.00@20.00
Red..... "		16.00@20.00
Ocher, Am. common.... "		9.25@10.00
Best..... "		21.25@25.00
Dutch, washed..... lb.		.04¼@.05
French, washed..... "		.01¾@.02½
Orange mineral, Am... "		.08¾@.08½
Foreign, as to make.. "		.09¾@.11¼
Paris green, pure, bulk. "		.12½@.13
Red lead, American.... "		.06½@.07
Foreign..... "		.08¾@.09
Shellac, "D. C."..... "		.27
Native..... "		.16
Turpentine, spirits..... gal.		.54½@.55
Ultramarine, best..... lb.		.25
Vermilion, Amer. lead.. "		.14
Quicksilver..... "		.69
Chinese ..... "		.80
English, imported.... "		.71
White lead, Am., dry... "		.05¾@.06½
In oil..... "		.06½@.07
English, in oil..... "		.08¾@.09½
Whiting, common.....100 lbs.		.42
Gilders..... "		.50
Zinc white, Am., ex. dry lb.		.05@.05½
American, red seal.. "		.07¼@.08
Green seal..... "		.08@.08¼
Foreign, red seal, dry "		.07⅞@.08⅜
Green seal, dry..... "		.08⅜@.09⅞
Foreign, in oil..... "		.10½@.11¾
Plumbago—		
Am. lump, f. o. b. Providence, R. I.....sh. ton		8.00
Am. pulv., f. o. b. Providence, R. I..... "		30.00
German, lump..... lb.		.01½
Pulverized..... "		.02
Ceylon, pulv. common. "		.04½@.05
Best..... "		.07@.10
Italian, pulv..... "		.01½
Potash—		
Caustic, ord..... "		.05½@.06
Elect. (90%)..... "		.06½@.07
Potassium—		
Metallic, in balls (Ger).. kg.		17.85
Bicarbonate cryst..... lb.		.08¼
Powdered or gran.... "		.12
Bichromate..... "		.09
Bromide..... "		.46
Carbonate..... "		.02¾@.03¼
Chromate ..... "		.35
Cyanide (98@99%)..... "		.28@.29
Ferro-cyanide ..... "		.19@.20
Iodide, bulk..... "		2.30
Permanganate, pure cr. "		.14@.15
Prussiate, yellow..... "		.18½@.18¾
Red..... "		.37@.38
Silicate..... "		.06
Sulphide, com'l..... "		.10
Quartz—(See Silica).		
Rosin—Common (280 lbs.) bbl.		1.60
Best..... "		4.25

	Cust. Meas.	Price.
Salt—N.Y. com. fine abt. 380 lbs..... bbl.		$ .70
N. Y. agricultural.....sh. ton		1.50
N. Y. coarse..... "		2.30
N. Y. dairy and table... "		2.90
Saltpeter—Crude.....100 lbs.		3.62½@3.75
Refined..... "		4.00@4.25
Samarskite..... lb.		1.00
Silica—Best foreign....lg. ton		10.00@11.00
Ground quartz, ord....sh. ton		6.00@8.00
Best..... "		12.00
Lump quartz..... "		2.50@4.00
Glass sand..... "		2.75
Fire bricks (Blue Welch) M.		35.00
Silver—Chloride..... oz.		.65
Nitrate..... "		.40
Oxide..... "		.85@1.10
Sodium—Metallic..... lb.		07¾
Acetate, com'l..... "		.03¾@.04
Bichromate..... "		.06¾
Bromide ..... "		.50
Chlorate, com'l..... "		.09@.09¼
Hyposulphite.....100 lbs.		1.60@1.70
Nitrite..... lb.		.07½@.07¾
Peroxide..... "		.45
Phosphate..... "		.02¾@.03
Prussiate..... "		.14¼@.14½
Triphosphate ..... "		.04
Silicate, conc..... "		.06
com'l..... "		.01@.01½
Sulphate, gran., puri'd. "		.03
Sulphide.....100 lbs.		1.75
Sulphite..... lb.		.02½
Tungstate, com'l ..... "		.35
Pure..... "		.50
Strontium—Nitrate .... "		.07½
Sulphur—Roll.....100 lbs.		1.75
Flour..... "		1.85
Flowers, sublimed... "		2.05
Talc—N. C.....sh. ton		13.75
N. Y., Fibrous..... "		8.00@9.00
French. .....lg. ton		16.00
Italian..... "		1.50@2.00
Tin—Bichloride..... lb.		.10@.12
Crystals..... "		.20@.20½
Muriate, 36°..... "		.09
Muriate, 52°..... "		.15
Oxide, white, ch. pure.. "		.41
Uranium—Oxide..... "		1.80@3.00
Zinc—Metallic, ch. pure.. "		.09@.10
Carbonate..... "		.15
Chloride ..... "		.05@.06
Dust..... "		.07¼@.07½
Sulphate..... "		.02½

THE RARE ELEMENTS.

Prices given are at makers' works in Germany, unless otherwise noted.

	Cust. Meas.	Price.
Barium—Amalgam ..... grm.		$1.19
Electrol..... "		5 71
Beryllium—Powder..... "		5.95
Crystals..... "		9.04
Nitrate (N Y.)..... oz.		2.50
Boron—Amorphous, pure grm.		.19
Crystals, pure..... "		1.43
Nitrate (N. Y.)..... lb.		1.50
Calcium—Electrol, balls.. kg.		17.85
Cerium—Fused.....grm.		2.02
Nitrate (N. Y.)..... lb.		21.00
Chromium—Fused ..... kg.		5.95
Pure powder 95%..... "		1.79
Chem. pure cryst..... grm.		.26
Cobalt—(98@99%)..... kg.		5.30@5.71
In sticks..... "		7.85
Pure..... "		30.94
Didymium—Powder..... grm.		3.81
Nitrate (N. Y.)..... oz.		4.00
Erbium ..... grm.		3.09
Nitrate (N. Y.)..... oz.		3.00
Gallium..... grain		9.52
Germanium—Powder.... grm.		33.32
Fused..... "		35.70
Glucinum—Powder..... "		5.95
Crystals..... "		9.04
Nitrate (N. Y.)..... oz.		2.50
Indium..... grm.		4.05
Iridium..... "		2.38
Lanthanum—Powder.... "		4.28
Electrol, in balls ..... "		9.04
Nitrate (N. Y.)..... oz.		3.50
Lithium..... grm.		2.38
Nitrate (N. Y.)..... oz.		.60
Molybdenum—Fused....grm.		.20
Powder, 95%..... kg.		2.62
Niobium..... grm.		3.81
Osmium..... "		.95
Palladium..... "		.71@.95
Rhodium..... "		2.62
Rubidium—Pure..... "		4.76
Ruthenium—Powder.... "		2.38
Selenium—Com'l powder kg		430.9
Sublimed powder..... "		40.46
Sticks..... "		33.32
Silicium—Amorphous...100 grms.		2.74
Crystals, pure.... ..... "		5.95
Strontium—Electrol .... grm.		6.19
Tantalium—Pure..... "		3.57
Tellurium—Ch. p. sticks.100 grms.		11.90
Powder..... "		9.52
Thallium..... kg.		26.18
Thorium—Metallic..... grm.		7.85
Nitrate 49@50% (N. Y.).. lb.		5.00@5.50
Titanium..... grm.		.71
Uranium..... "		.48
Nitrate (N. Y.)..... oz.		.25
Vanadium—Fused..... grm.		1.19
Wolfram—Fused, elect...100 grms.		22.80
Powder, 95@98%..... kg.		1.67
Pure, powd..... "		6.43
Yttrium..... grm.		3.33
Nitrate (N. Y.)..... oz.		4.00
Zirconium—Com'l..... kg.		119.00
Pure..... grm.		.71
Nitrate (N. Y.)..... oz.		1.00

NOTE.—These quotations are for wholesale lots in New York unless otherwise specified, and are generally subject to the usual trade discounts. This table is revised up to Feb 5d. Readers of the ENGINEERING AND MINING JOURNAL are requested to report any corrections needed, or to suggest additions which they may consider advisable. See also Market Review of Chemicals and Minerals.